JAN.
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1960

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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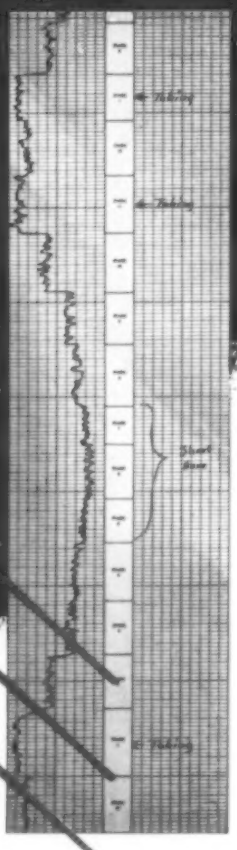

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DEPT/Opinions

Views That Make News . . .

"Our relations with the Arabian American Oil Co. and other companies operating in our country are entirely satisfactory. We resolve our differences of opinion through negotiations on the basis of mutual respect for each each others' interests. This is our general policy and we shall adhere to it so long as the oil companies continue to respect our interests."

—KING SAUD
Saudi Arabia

"Foreign manufacture is not and cannot be the simple transfer of bricks and mortar and machines to another country. It is not even like a Chicago firm building a plant in Texas. If we make the mistake and think that it is, our chances for success will be slim indeed."

—W. SAM CARPENTER, III
General manager, international department E. I. du Pont de Nemours & Co.

"What is necessary is a re-evaluation of the entire grease marketing effort. . . . Our industry has been challenged—we should be grateful for the challenge and, in our response, achieve new levels of activity."

—JOHN Y. MCCOLLISTER
McCollister Grease & Oil Corp.

"I first went on an oil company payroll in 1914. Since that time, industrial construction costs have risen 790%, the cost of living has risen 190%, the hourly wages of refinery workers have risen 1,000%. But the selling price of the oil industry's principal product — gasoline —has risen only 50%."

—CLARENCE H. THAYER
Vice-president, manufacturing Sun Oil Co.

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—HARRY J. PECKHEISER
Director & vice-president, marketing General Petroleum Corp.

. . . and Letters

Dear Sir:

In your "Kentucky Play Spills Into Tennessee" [PW—Dec.4'59,p25], you'd better have your artist review his geography. Nashville is in Davidson County, not Dickson.

GEORGE LANE
Pasadena, Tex.

• Mr. Lane is right, of course. Our artist has been duly admonished.

Dear Sir:

We strongly believe the program outlined in your article "Ship Safety Program Set for Delaware" [PW—Dec.11'59,p50] will be most successful. Why? Simply because Esso began bridge-to-bridge communications on their tankers . . . some four years ago . . . on the Mississippi. And Esso got its idea from Mississippi towboats, which have long used bridge-to-bridge communications on the FCC authorized channel . . .

Since inland towboats are operated by three of the Delaware River companies you list, Gulf, Sinclair, and Socony, we predict a rapid expansion in using bridge-to-bridge radios on tankers as soon as their deep sea people examine their inland fleets' experience.

Our hat is off to the Delaware River group for adoption of this excellent safety measure. But credit for the idea should be given the originators—the inland towboats.

WILLIAM C. MCNEAL
Oil Transport Co. New Orleans, La.

PETROLEUM WEEK *will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.*

Address all such correspondence to LeRoy Menzing, Editor, PETROLEUM WEEK, *330 W. 42nd St., New York 36, N.Y.*

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INSIDE Slant

SUGGESTIONS FOR 1960

It's a little late to think of New Year's resolutions, but here are a few suggestions for 1960:

Why shouldn't purchasers of Texas crude be required to report their actual purchases versus nominations, and also versus assigned allowables? (This is done in Louisiana, Oklahoma, and New Mexico).

This would eliminate apparent increases in nominations when purchasers adjust to receipts. The end result would be more realistic nominations.

Transcripts of Texas statewide proration hearings should be required reading for top executives. It would enable them to learn what is said by their representatives and by members of the commission, and thus to get an insight as to what actually occurs at a hearing.

The API's weekly statistical report, particularly with regard to fields in various states, should be modernized in keeping with the times. But the weekly report, with important subdivisions, should be continued as a barometer of industry operations.

The Bureau of Mines should adjust weekly crude stock figures to its more accurate monthly totals.

LeRoy Menzing
Editor

Background: One of three 2500 hp Type GMWA Cooper-Bessemer compressors at Winnipeg station.

Exterior view of Winnipeg compressor station of Trans-Canada Pipe Lines.

The three 2500 hp Type GMWA compressors at Winnipeg station.

C. Robert Jones, *General Manager, Cooper-Bessemer of Canada, Ltd., explains a vital project...*

Speedy building of Trans-Canada facilities provides gas for Canadian growth

Trans-Canada Pipe Lines is a great and growing Canadian enterprise. Its 2290-mile line carries the means for long-term, continuing benefits—new industries, new jobs, new purchasing power—spread from Vancouver to Labrador.

There is now an abundant gas supply for this growing nation, thanks to the speedy completion and dependable operation of Trans-Canada facilities. The station, shown here, at Winnipeg, Manitoba, equipped with three 2500 hp Cooper-Bessemer compressors, is a good example of this performance.

Cooper-Bessemer is proud of the part it has played in providing Trans-Canada with the dependable Winnipeg station and other Cooper-Bessemer powered stations *ahead of schedule*. Find out how we can help meet *your* needs in modern compression and power facilities.

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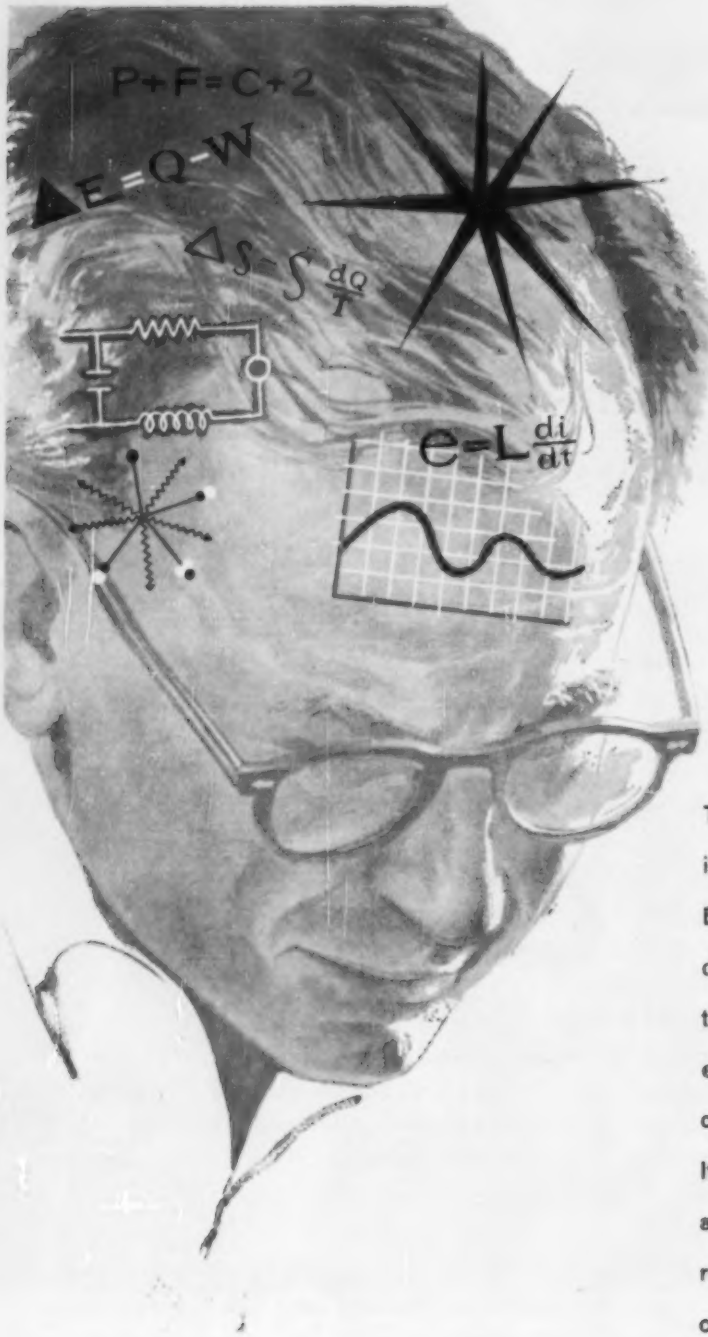

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60-Second Summary / WHAT'S HAPPENING IN OIL

January 8, 1960

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The betting is that steel prices will go up in 1960, now that a wage settlement has been made. But the price hike may not come until late in the year. . . . p. 12

•

The Rockies will be the focal point of drilling activity again this year, with the Gulf offshore sharing the "spot." But many areas look good as drilling begins to pick up some of the luster of its peak years of 1955 and 1956. . . . p. 21

•

A line composed of three concentric pipes will be moving molten sulfur from the Gulf of Mexico. The two inner lines are made from a manganese-molybdenum alloy. . . . p. 35

•

Few laws affecting petroleum are expected from Congress in 1960. The only serious possibility is a half-cent hike in gasoline taxes. . . . p. 11

•

France is out to sew up outlets for its Sahara oil. A step in this direction is the formation of an integrated, state-controlled oil company. . . . p. 39

•

Refiners are going in for crude desalting in a big way. They find that the removal of salt water improves operating economics. . . . p. 43

•

Sohio is bracing itself against stiffening competition. It will expand and sharpen operations this year in an effort to hold its marketing position. . . . p. 52

•

Two tough alternatives face operators in California's North Tejon field. They'll have to decide whether to set a long casing string or to face additional costs of redrilling. . . . p. 26

•

Refineries are getting larger and more complex. One of the most spectacular developments is the use of electronic computers to optimize—and eventually to control—refinery processes automatically. . . . p. 42

•

Alberta's production of sulfur from gas has jumped more than 50% in the past year. Western Canada's production of 1,500 tons daily may expand by another 2,700 tons daily by 1961. . . . p. 24

•

Mobil Oil's Pecos County gasser may turn out to be one of Texas' "hottest" exploratory tests. The company is preparing to evaluate the gas flow found at 15,000 ft. . . . p. 27

Up to the Minute / SIGNIFICANT LATE NEWS

January 8, 1960

The Federal Power Commission has postponed its Supreme Court-ordered rehearing of the CATC gas sale case. The case, involving sale of offshore Louisiana gas to Tennessee Gas Transmission at 22.4¢ per Mcf. (including tax), was once approved by FPC. But the Supreme Court last June remanded the case to the commission with a warning to prevent "excessive" prices in initial contracts. The case was set for Jan. 12 (page 18), but the producers—Continental, Atlantic, Tidewater, and Cities Service—asked for a prehearing conference which will be held next week.

•

Interest rates on bank loans may be heading higher. That was indicated this week when New York banks increased their rates on brokers' loans to 5½% from 5%. Such a move usually leads to an increase in the prime interest rate, now 5% by New York banks, charged to customers with highest credit ratings.

•

The Federal Power Commission reaffirmed its contention this week that termination dates for gas contracts are meaningless. It refused to permit Harper Oil Co. to abandon sales to Cities Service Gas, even though Harper argued that its contract expired Jan. 1, 1958. FPC stuck to the principle upheld by a lower court in a case involving Sunray Mid-Continent Oil Co. That case is pending before the U.S. Supreme Court. Harper sought to abandon sales to Cities Service at 10¢ per Mcf. so it could sell the gas intrastate at 11¢ per Mcf.

•

Appeals are to be filed in the Indiana "price-fix" case in which the Teamsters and a retailer group were fined $13,000. The guilty verdict and penalties were handed down this week by Federal Judge L. M. Swygert against Teamsters Local 142, its secretary-treasurer, Michael Sowachka, and the Gasoline Retailers Assn. of Lake County. They were accused of "conspiring" to "stabilize" gasoline pump prices in the Hammond area.

•

Republic Oil Refining Co. lopped 10¢ per bbl. from its crude postings in seven Southwest Texas fields this week. About 3,500 b/d were affected by the reductions in the Green Lake, Heyser, Long Mott East, Long Mott South, McFaddin East, Sheriff, and Sheriff East fields in Calhoun, Refugio, and Victoria Counties. The price is topped at $3.25 for 40-gravity.

In the Four Corners area, Union Oil Co. of California increased its posted price 15¢ per bbl., effective Jan. 1. The new schedule has a top of $2.75 for 40-gravity oil, and is similar to the postings of other companies in the area.

•

The Federal Trade Commission finally O.K.'d Gulf Oil's acquisition of Warren Petroleum this week. But Gulf had to agree to dispose of several wholesale LPG and natural gasoline outlets owned by Warren and to continue to sell LPG and natural gasoline for the next ten years to the customers the two companies had in 1955. Gulf acquired Warren in 1956.

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New Welex Jet Perforator

Revolutionizes Slim-Hole Completions

The Welex Sidewinder for the *first time makes* perforating *economical* and *effective* in slim-hole wells where small diameter pipe or tubing has been set for casing.

Now it is not necessary to choose between a through-tubing perforator that leaves debris in the hole and a retrievable perforator containing a "*peanut size*" charge.

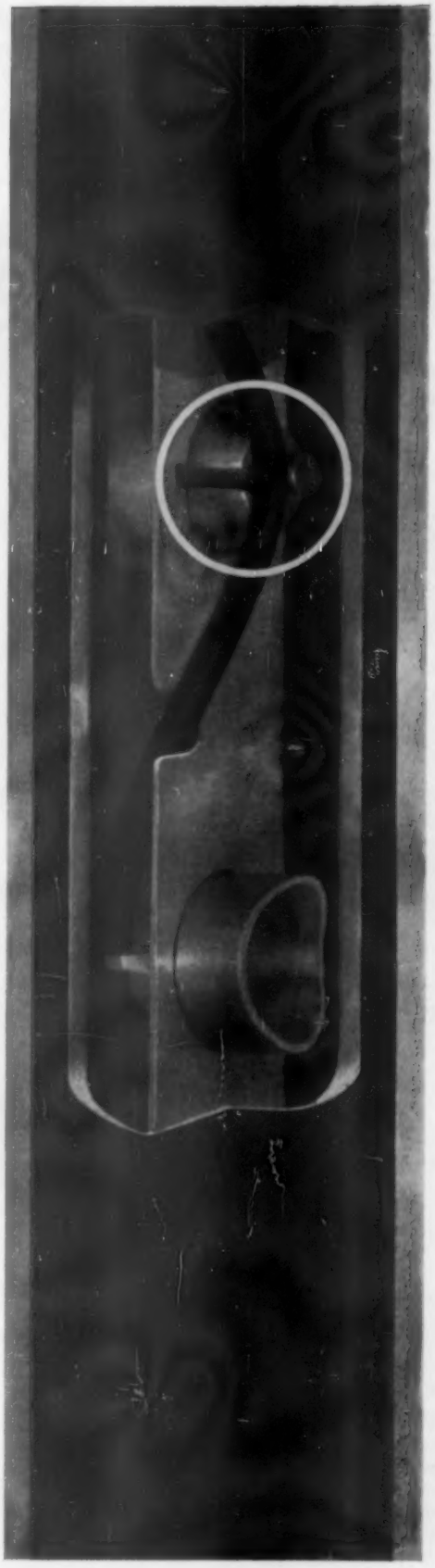
The hollow, expendable Sidewinder carrier measures 1⅞" OD and is completely retrievable through a 2¼" seating nipple in a 2⅞" OD tubing string. Two types of carrier, each 10 feet long, permit shot densities of *one, two, three or four shots per foot*. The one and two shot carriers perform at pressures up to 13,400 lbs. psi at 300 degrees F. The three and four shot carriers perform at pressures up to 21,600 lbs. psi at 300 degrees F. Carriers can be cut into smaller sections or run in tandem for longer lengths.

The new Sidewinder principle, which places the primacord on the side of the charge, permits an additional one-fourth inch added to the effective length of the charge—a full 5½ grams of explosive. The Sidewinder delivers maximum penetration, *at least 50 percent more* than any similar gun in the industry, with *minimum debris.*

ADVANTAGES OF THE SIDEWINDER* ARE:

1. Sidewinder principle of detonation permits largest possible charge inside hollow carrier of this size.
2. No debris is left in the hole after firing.
3. Gun is retrievable through 2¼" seating nipple before and after firing.
4. Risk of casing damage is reduced to minimum because hollow carrier absorbs the majority of the detonation shock.

For maximum penetration in slim-hole perforating, choose the revolutionary new WELEX SIDEWINDER. For more information call your nearest Welex representative.



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"I consult the service and supply men whenever drilling is started in a new territory. They quickly give me the correct information on the area, because they know the operating problems. This saves me valuable time and provides for a planned drilling program.

"We are continually faced with the problem of drilling and completing deeper and deeper wells. The research departments of the Equipment and Service Industries have developed new and better materials to get this job done. Without the improved equipment we would really be up the creek. The Supply Stores stock needed materials, eliminating burdensome and costly inventories for the operator.

"With the cooperation of the manufacturers, the American Petroleum Institute has done a great job in its standardization activities. Their men have served the committees faithfully, giving unselfishly of their time and knowledge. Because their plants and offices, in many cases, are located outside oil and gas producing states, they have assisted us in defending the depletion provision in those areas.

"Manufacturing, service and supply companies are valued partners to me. They are always 'Johnny-on-the-spot' with equipment, supplies and know-how, when and where it is needed. These companies are made up of loyal, determined, aggressive men who, through their dedication and willingness to sacrifice, are 'oil men' in the truest sense of the word."

P.E.S.A.

PETROLEUM EQUIPMENT SUPPLIERS ASSOCIATION

PROUD TO BE PART OF A PIONEERING INDUSTRY

PETROLEUM EQUIPMENT SUPPLIERS ASSOCIATION

1960 Will Be a Year of Political Sparring in Washington

Bills affecting the petroleum industry will go into the hopper . . .

Top row, l. to r.: Rep. Boggs, Speaker Rayburn, the President, Sen. Proxmire, Sen. Johnson. Bottom row: Rep. Ikard, Sec. Seaton, Rep. Roosevelt, Sen. Kefauver.

. . . but what comes out—after much talk—will be mostly spadework for 1961, 1962.

Oil Could Be a Top Topic in Congress

Taxation and regulation—these problems keynote the petroleum industry's legislative and political interests in an otherwise-occupied Washington in 1960.

Starting this week with the opening of Congress, 1960 promises to be the hottest political year in more than a decade.

Election-year politics normally tend to all but ignore complex problems of limited national interest—matters directly affecting a particular industry or area of business.

Only when prospects of political scandal or vote-swaying power appear on the horizon do such relatively narrow issues become important to the country as a whole.

The disposition of Naval petroleum reserves, for example—presently a legislative problem in Washington—could not be expected to stir the electorate unless another Teapot Dome affair were involved.

The petroleum industry, a popular "whipping boy" in Congress, won't be ignored in an election year. Controversial issues are bound to be injected into the political fray—whether or not bills are introduced.

Speeches on natural gas regulatory problems usually fall on deaf ears in many parts of the country. Congressmen and candidates recognize this political myopia.

But the expedient approach in such a year as 1960 is still deemed best for collecting votes. And with most ears in Congress straining to hear the voice of the voter, any issue that stands a chance of attracting votes will be discussed in Washington.

Popular general issues—peace and prosperity—will go to the fore. Schools, housing, wages, civil rights, personal income, and other problems which directly affect the most voters will draw the most attention from lawmakers.

The federal gasoline tax, percentage depletion, and foreign operation incentives will be the petroleum "pocketbook" issues this year.

Last year, the President asked for a 1½¢-per-gal. increase in the federal

tax on motor fuels. Congress, after considerable debate, authorized 1¢.

If the Administration seriously presses for another half-cent increase in the motor fuels levy, Congress will be sharply split on this tax problem.

The tenor of Democratic leaders in Congress is one of opposition to another gasoline tax increase.

Rep. Wilbur Mills (D., Ark.), chairman of the tax-writing House Ways & Means Committee, has indicated he will be opposed to any further increase this year.

Rep. Frank Ikard (D., Tex.), a member of the committee, says the Administration received an increase in 1959 and cannot expect another boost. Even some Republican members of Congress are hostile to a higher tax level.

The additional money would be used to finance faster construction of the Interstate Highway System. This, of course, was the same reason advanced for the 1959 increase. But many Administration leaders want to put the road-building program back on its original schedule—aiming at completion in the early 1970s.

Whether Congress will again increase the gasoline tax depends in a large part on how much pressure is brought to bear—and from what sources.

Several states are complaining about the slowness of the highway program, and are urging the federal government to expedite road-building.

If President Eisenhower, in his last year of office, uses his position to insist on another increase, Congress may bow.

If Eisenhower is not vigorous, the Democratic majority in Congress will either find some other financing method or let the construction program proceed on the present slowed-down schedule.

Opposition to any further increase is already building up. The American Automobile Assn. has begun to campaign and organize highway user groups against the potential rise.

Efforts to reduce the depletion provision in 1960 apparently won't get further than another Senate floor vote.

For each of the past several years, a coalition of "liberal" Senate Democrats and Republicans, mostly from northern and eastern consuming states, have tried to reduce the 27½% depletion provision for oil and gas by seeking to tack a rider to a routine tax bill.

Bills to accomplish the cut have gathered dust in committee pigeonholes, and the only available forum for the antidepletionists has been the floor of the Senate.

Although a presidential election year might give a few more votes to the antidepletion forces led by Sen. William Proxmire (D., Wis.) and others, depletion backers in the Senate are not fearful of any close call.

The major reason for the confidence is the inclusion of depletion as a subject in the extended taxation study pending before the House Ways & Means Committee.

The House is not expected to consider any major tax bill affecting depletion until 1961.

So says Chairman Mills. Mills, close to Speaker Sam Rayburn, is in a position to make his words stick. But that will not bar attacks on depletion in both the House and Senate.

A bill to encourage more investments overseas has a fair chance of passage this year.

It is HR-5, sponsored by Rep. Hale Boggs (D., La.), which would permit tax deferral on overseas earnings and aim at making taxation on foreign profits more uniform.

Boggs succeeded last year in getting tentative approval for his bill from the Ways & Means Committee. The Louisiana lawmaker is gaining in prestige in the Democratic Party, which may help chances of his legislation in the Senate.

Natural gas again tops the list of regulatory problems besetting the petroleum industry—but with little chance of legislative solution this year. The possibility of such legislation gained a step recently when Secretary of the Interior Fred Seaton, apparently stating Administration views, said that some method of solving the regulatory entanglements is still considered vital. Many industry leaders took Seaton's remarks to be a tacit invitation for natural gas men to put forth another bill.

Several industry trade associations and groups are actively considering means of either decontrolling gas producers selling into interstate commerce, or at least modifying controls.

The Independent Petroleum Assn. of America has a special committee studying possible legislation. The Texas Independent Producers & Royalty Owners Assn. is talking about a bill which would require natural gas pipeline companies to operate much as oil pipelines. Sales of gas would be from producers to ultimate consumers, with no regulation of producer sales.

The Independent Natural Gas Assn. of America passed a resolution late in 1959 opposing "utility-type" regulation of gas production.

Those arguing for a strong push for corrective legislation this year say they fear any further delay would result in adoption by FPC of some regulatory method based on the costs of doing business.

But most Washington observers seriously doubt that Congress will be willing to get into another hard-fought controversy over natural gas this year.

Only a direct recommendation for legislation from the White House, accompanied by agreement from the industry's diverse segments, would offer much chance for an amendment to the Natural Gas Act this year.

More probably, any attempt at gas legislation in 1960 must, of political and industrial necessity, be confined

Steel Pact Means

The steel settlement will bring a rise in steel prices. But a major advance may not come until the end of the year, when the first part of the wage boost is made.

That's the belief by industry and government sources following the pact hammered out between the companies and the Steelworkers Union after intervention by Vice-President Nixon and Labor Secretary Mitchell.

Top steel officials said that prices would not be raised immediately. But there are many indications in the industry that a few dollars a ton might be added in the form of "extras" long before the first wage boost provided in the pact becomes effective Dec. 1.

Roger M. Blough, chairman of U.S. Steel Corp., said the agreement was less inflationary than any since World War II. But he added that wage increases in steel and other major industries spread through the whole economy.

The 41¢-an-hour package calls for increases ranging upward from 7¢ an hour on Dec. 1, and a similar amount on Oct. 1, 1961, in the 30-month contract that expires June 30, 1962.

But fringe benefits to the employees became effective immediately.

Any price hikes that the companies eventually institute as a result of the settlement are expected to be on selective items—not across-the-board raises.

However, the companies are expected to have difficulty making even these selective increases stick because of competition from foreign suppliers.

During the 116-day strike, many domestic firms arranged for long-term

Price Hike in '60

contracts with foreign steel suppliers for many items, including oil pipe and equipment. Most of these contracts call for lower prices than those charged by domestic steel firms.

The settlement means that steel production and the growth in the nation's economy will continue uninterrupted at least for the near-term future. It assures a strong oil demand through 1960.

The petroleum industry's outlook for the year depended largely on whether or not industrial operations would be slowed or halted by a new steel walkout on Jan. 26 when the Taft-Hartley injunction was to expire.

In fact many large steel users had been putting the heat on the steel industry to settle to prevent a major disruption of the economy.

Whether price hikes for steel come now or later, they will mean higher costs to oil industry users.

And many in the industry—particularly producers—claim that the general oversupply of oil, and the resulting price weakness, have prevented them from recouping the higher costs of the last steel price hike of mid-1958.

Oil country tubular goods rose from $7 to $10 a ton and line-pipe prices were advanced $6 a ton then.

Some observers predict that the steel wage hike won't necessarily lift the sights of other unions in 1960.

The actual straight-time wage boosts, amounting to just over 7¢ per hour per year, are not out of line with the increases granted in other industries in 1959. And the 7¢ about matches some deferred pay raises through 1960.

to planning and preparation for 1961 or 1962.

The petroleum industry will face a fuels fight with coal this year.

Coal interests, joined in the National Coal Policy Conference, want Congress to create a new joint committee to study the need for a so-called National Energy Policy. Petroleum men are fearful that such a policy might, under the impetus of the coal industry's politicking, benefit only coal at the expense of oil and gas.

A resolution to create the committee is pending before the House Rules Committee; it's already been cleared by the House Interior Committee.

Petroleum backers in the House will try to block the resolution in the rules body. In the upper chamber, the resolution is pending in the Senate Interior Committee.

Oil men argue that the coal interests only want to carve out a section of the competitive fuels market for themselves—with governmental aid and recognition.

Marketing problems of the oil industry will get a going-over by several congressional committees.

Rep. James Roosevelt (D., Calif.), chairman of a House small business subcommittee on marketing, plans to sponsor a bill calling for separation of the distribution of tires, batteries, and accessories from that of gasoline (PW—Dec.18'59,p62).

Roosevelt hopes to back his bill with testimony of discrimination taken in hearings last month and expected in future hearings. But Roosevelt is not expected to gain enough support in Congress.

Rep. Emanuel Celler (D., N.Y.), chairman of the House Judiciary Committee, may press his bill barring rebates to shipper-owned oil pipelines. Celler is expected to use the current Justice Dept. report on the Interstate Oil Compact (PW—Dec.30'59,p16), critical of pipeline operations, to stir support for his measure.

Still, the preoccupations of an election year and the normal opposition to the bill appear to be sufficient to keep its chances of passage very slim.

Sen. Estes Kefauver (D., Tenn.) will make some attempt to pass his bill to upset the "good faith" defense against price discrimination charges. But Kefauver will be occupied with an investigation of the drug industry this session, and the perennial S-11 may not receive much attention.

Advocates of a national fair trade law are hopeful of using an election-year atmosphere to push that legislation, which has both supporters and opponents among oil marketing companies. The fair trade bill, however, is given only a fair possibility of enactment.

Leasing changes will come up again this year.

In 1959, President Eisenhower vetoed an Alaskan leasing bill. The measure will have a good chance this year if Congress trims the increased acreage limitations in the new state to meet Interior Dept. recommendations.

House and Senate Interior Committees are expected to recommend legislation increasing the primary terms of leases from five to ten years, ending the distinction between leases and options, and increasing rental fees.

Candidates for the Presidency may be affected by their stands on petroleum issues.

Oil and gas men will look at the records of potential candidates before contributing financial help or working for their nomination.

And oil and gas critics similarly will also study the records of the candidates.

Most of the candidates for the Democratic presidential nomination have voted or taken a stand on several key petroleum issues.

Senate Majority Leader Lyndon B. Johnson (D., Tex.) has backed gas legislation, depletion, and import controls. But Johnson may try to put some daylight between himself and his petroleum support if the nomination appears available to him.

Sens. Hubert Humphrey (D., Minn.) and Stuart Symington (D., Mo.) have voted to cut depletion.

Sen. John Kennedy (D., Mass.) has voted for some depletion-cutting bills but against another.

All three have opposed natural gas legislation, and Kennedy has fought import controls.

Adlai E. Stevenson has not been committed on most of the issues, but is believed to be opposed to deregulation of gas producers and has supported claims to offshore oil ownership.

Vice President Richard Nixon, now the lone contender for the Republican presidential nomination, is much in line with the policies of the Eisenhower Administration on petroleum issues. He favors depletion, and would support gas legislation if it met certain consumer protective requirements.

Research Defined As 'New Industry'

So much time, effort, money, and brains are being poured into research that it now can be considered an industry in its own right—an industry of discovery.

That's the feeling of M. J. Rathbone, president of Standard Oil Co. (N.J.), whose apt summation came at the dedication of a new research building at the Ochsner Medical Foundation in New Orleans last week.

Research expenditures have increased five-fold in the last decade. Rathbone pegged current expenditures at $12.5-billion annually, compared with $2.5-billion ten years ago.

As one result, he said, "we are today experiencing a new and unparalleled burst of discovery."

In addition, he went on, research has injected "a new dynamism into the American economy."

Few Are Happy on Imports

The government most likely will have its busiest time defending its import allocations during the first half of this year.

That's the indication from the 25 appeals that have been filed so far on the allocations granted for the January-June period. In relation to the total allocations granted—155 for crude and unfinished oils, 35 for residual fuel oil, and 28 for light products—the number of appeals isn't large.

But the nature of the appeals is the important thing.

The size of the hike in quotas being requested by many companies would be impossible for the Oil Import Appeals Board to grant. And the appellants know that.

Tidewater Oil Co., for example, wants it crude and unfinished oils allocation east of the Rockies nearly tripled—from 22,100 b/d to 62,000 b/d. Crown Central Petroleum Corp. asked that its 4,027 b/d of crude and unfinished oils be jumped to 20,000 b/d.

Socony Mobil Oil Co. requested that its 43,300 b/d allocation of crude and unfinished oils be raised to 70,500 b/d in Districts I-IV.

In all cases, the basis of the appeals is hardship. Tidewater claimed "exceptional hardship." Crown Central said that import controls have cut its supply nearly 64%—out of proportion with its competitors.

Cities Service Co., in seeking an increase from 21,040 b/d to 32,000 b/d in its east-of-Rockies crude quota, noted that it "is being forced out of its natural and historical" East Coast markets. It added that the current quotas threaten "to force it out of business completely."

Residual fuel allocations, which were raised by nearly 62,000 b/d, have prompted the most appeals, and undoubtedly will cause the most trouble—leading to possible court tests of the control program.

The government-authorized resid quota of 425,000 b/d for the areas east of the Rockies was trimmed some after the National Coal Policy Conference intervened before the final allocations were set.

Oil companies oppose the intervention. And many claim that the distribution of the quotas is not "fair and equitable" as specified in the presidential directive establishing the program.

Gulf Oil Corp. says the method of allocating resid quotas is "arbitrary and unreasonable and results in unlawful and discriminatory classification and a confiscation of property."

The language of Gulf's appeal has led many observers to predict an early court test by the company if the appeals board turns down its request—as it did last year. Gulf is back with its 1959 appeal that its allocation of resid be hiked to 35,000 b/d. It now has a quota of 2,504 b/d, compared with 2,141 b/d in the last half of 1959.

Socony Mobil is looking for a much bigger increase in resid allocation—from 315 b/d to 26,000 b/d. The company wants to import resid from its El Palito refinery in Venezuela.

Gas Sees Bright Future Ahead

The gas utility industry expects to "go like 60" in the 1960s.

A spokesman made these forecasts for the decade ahead:

- New Customers: An average of over 1-million a year, for a total of 10.7-million in the ten-year period, and a grand total of 43.3-million consumers in 1969.
- Home Heating: An average of 1¼-million more customers a year, for a total of 12.6-million in the decade itself, and an over-all total of 33-million ten years hence.

The forecasts came from Wister H. Ligon, president of Nashville (Tenn.) Gas Co., who doubles in brass as president of the American Gas Assn.

His forecast modestly evaluated the 60s as a "decade of continued growth." But his words had an ominous ring for fuel oil dealers who already are engaged in a bitter struggle for the home heating market.

He said the gas industry's home heating customers were up 6.8% in 1959 over 1958. They now total 20.4-million, and are expected to exceed 21-million by 1961.

The AGA president termed 1959 a record-breaking year, which climaxed the gas industry's "greatest decade of expansion."

As the old year ended, he said, the industry had 1,350 distribution companies and 100 transmission companies serving 32.6-million customers.

Annual sales reached a peak of 87-billion therms (a therm is 100,000 Btu.), and sales revenues exceeded $5-billion for the first time. The dollar volume represented an 11.3% increase over 1958.

Ligon also noted that, "while gas use has climbed to an all-time high, proved reserves also have advanced to a new peak, assuring consumers of adequate, long-range supplies."

Equipment Sales May Rise 3%

Sales of drilling equipment will chalk up another—if somewhat modest—increase in 1960.

According to a survey by the Business & Defense Services Administration, U.S. Dept. of Commerce, purchases of machinery and equipment for domestic oil, gas, and water well drilling in 1960 will rise 3% over 1959 to about $957-million.

It would represent a gain of 20% over 1958.

Better sales are due largely to an expected 3.9% increase in domestic oil demand and a resultant step-up in drilling activity.

The search for new reserves to back up the expanded demand is expected to result in the drilling of some 52,000 wells—a 3% gain over the estimated 50,500 drilled in 1959, the Commerce Dept. agency predicted.

More rigs are being taken out of mothballs, with about 65% of the total 3,400 rigs over-age, needing replacement or repairs. In addition, the expanded drilling program will step up demand for newer and more modern equipment with faster penetration rates, the agency survey found.

Exports of drilling equipment, however, will continue to fall off. The 1960 volume is placed at slightly more than $150-million, 11.8% below the estimated 1959 exports.

While the over-all outlook for the equipment business is encouraging, manufacturers will still be affected by rising costs.

Both drilling contractors and producers will also be hit by continued rising expenses.

And the Commerce agency noted that "uncertainty regarding the status of the present depletion rate applicable to domestic drilling" will be an additional unfavorable factor in the 1960 outlook for drilling equipment sales.

'Conspiracy' Trial Starts Feb. 1

Eighteen months of sparring and legal roadwork are nearing a climax this week as the "conspiracy" trial of 29 oil companies approaches its scheduled starting date.

Jan. 15 is the deadline for the Justice Dept. to file its pretrial brief, another lengthy court paper in which it must itemize its charges and the documents it plans to use to support them.

The oil companies then have until Feb. 1 to file their answer or answers. This represents a minor victory for them, since the government previously had sought to have them file their answers simultaneously with its pretrial brief on Jan. 15.

Defense counsel won the point by contending they couldn't possibly answer a brief without having seen it.

The trial is scheduled to get under way on Monday, Feb. 1, in Tulsa, with U.S. District Judge Royce H. Savage presiding.

The trial had been slated to start Jan. 18, but the government's professed inability to complete its pretrial brief by Dec. 7 occasioned a seven-week delay.

Judge Savage has been patient but explicit in the series of pretrial conferences. His attitude in December indicated, however, that he's against further postponement.

This is probably the most thoroughly pretried criminal antitrust case in history.

The government filed its original bill of particulars—spelling out who, what, where, when—last February and March. Since then it has added eight supplements, and the entire bill now runs over 350 legal-sized pages.

There have been three pretrial conferences, the last occurring early in December. About ten attorneys represent the government's side, but the oil companies have a ten-to-one lead in legal manpower.

The government's case will be primarily a "document case." Any documents subsequently added will be included in the final bill of particulars.

The case stems from a Justice Dept. charge in the spring of 1958 that the 29 oil companies conspired to raise the prices of crude and gasoline during the Suez crisis—specifically, during January, 1957.

A federal grand jury at Alexandria, Va., returned the indictment, but the case was transferred to Tulsa, center of operations for most of the companies, at their request.

The pretrial roadwork by the government and the companies probably paved the way for a much shorter trial.

Judge Savage feels the government should be able to conclude its side of the case within two months as a result of this preparation.

If the oil companies take no longer, the trial could be over by June 1, instead of taking a year or more, as was expected.

For the government, it's all or nothing. It is pressing a criminal action; thus, if it loses it cannot appeal the verdict.

Constitutional guarantees against "double jeopardy" protect any person from being tried twice on the same charge in criminal actions. And a corporation is a "person" in the eyes of the law.

The government could file a civil suit later, but there is little likelihood of this happening if it does not win the criminal case.

Although it is not expected to happen in the Tulsa case, it would be possible for the judge to rule, even on the first day, that the government doesn't have sufficient cause to prosecute.

On the other hand, the defendants have the right of appeal. If the oil companies should be found guilty as charged, they could appeal the case to a U.S. circuit court of appeals—and, if they should lose there, to the Supreme Court.

If convicted, the companies face $50,000 criminal penalties.

No jury is expected to be used when the trial starts.

Testimony will probably be presented only to Judge Savage, with the companies and the government agreeing to waive a jury trial.

Judge Savage is noted for his fairness, impartiality, and keen eye for detail.

The filing of a bill of particulars by the government is an example. Never before in an antitrust case has the Justice Dept. been forced to spell out exact names, dates, times, and places in such detail.

The Tulsa case is not unique in the annals of the oil industry. It has its parallel in two previous cases—the "Madison" case (1936) and the "Mother Hubbard" case (1940)—both essentially suits against bigness.

U.S. May Call 72 Witnesses

Justice Dept. lawyers have listed 72 tentative witnesses who may be called in the Tulsa case. The list shows company affiliation as of January, 1957—the time when the alleged "conspiracy" took place. They are:

Arkansas Fuel Oil: P. H. Duval.

Ashland Oil & Refining: Erskine A. Owens.

Atlantic Refining: E. J. Henry, Jr., K. G. Krech, C. E. Stose, and J. H. Wood, Jr.

Carter Oil: J. W. Brice.

Cities Service: Gerald McGrew, C. S. Mitchell, and B. S. Watson.

Continental Oil: Serge B. Jurenev, Harry J. Kennedy, L. F. McCollum, J. G. McLean, Charles A. Perlitz, Emerson G. Smith, A. W. Tarkington, and T. A. van Griethuysen.

D-X Sunray: R. W. McDowell and D. M. Shields.

Esso Standard: A. J. Ferguson, R. P. Ferguson, S. C. Hope, T. F. Smith, and H. J. Voorhies.

Gulf Oil: J. G. Coates.

Humble Oil & Refining: Hines H. Baker and H. W. Ferguson.

Lion Oil: J. E. Howell.

Magnolia Petroleum: J. L. Latimer.

Ohio Oil: G. E. Countryman, J. C. Donnell, II, L. T. Weger, and D. R. Williams.

Pan American: R. W. Pitcher.

Phillips Petroleum: R. H. Lindsay.

Shell Oil: A. K. McClanahan.

Sinclair Crude Oil: R. V. Dillman, Seth Hazel, W. T. Shirey, Hayes Simpson, and D. A. Young.

Sinclair Oil: P. C. Spencer.

Sinclair Refining: C. J. Allen.

Skelly Oil: Don H. Miller, Lawrence A. Poland, and J. B. Sleeper.

Socony Mobil: F. W. Bartlett and Herbert Willetts.

Standard Oil (Ind.): G. V. Myers, F. O. Prior, J. E. Swearingen, and R. E. Wilson.

Stanolind: J. E. Brewster, J. C. Mytinger, R. F. Pielsticker, and D. L. Wolfe.

Standard Oil (N.J.): Eugene Holman and M. J. Rathbone.

Standard Oil (Ohio): C. E. Spahr and J. F. Wilson.

Sun Oil: Robert G. Dunlop, J. R. du Perier, Robert E. Lee, S. N. Jackson, and K. V. Schroeder.

Texaco: R. C. Cathcart, J. B. Freeman, J. W. Green, and J. S. Leonard.

Tidewater Oil: J. W. Gendron and George W. Goad.

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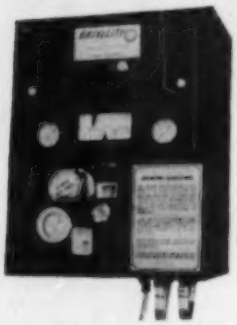

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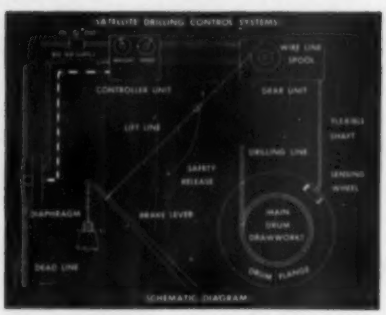

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What's New / IN THE INDUSTRY

Pure Oil Co. plans to buy Woodley Petroleum Co. in a major move to expand its crude production and reserves. Robert L. Milligan, president of Pure, and J. R. Parten, president of Woodley, said that Pure will issue 1,193,881 common shares in exchange for substantially all of Woodley's assets—the equivalent of 1.4 Pure shares for each of Woodley's 852,772 shares outstanding. The proposal goes up before Woodley stockholders Mar. 23 in Houston. Woodley is primarily a producing company. Net production for the first nine months of 1959 averaged 9,300 b/d.

•

The merger of Leonard Refineries into the Standard Oil Co. (Ohio) has hit a legal snafu. The Justice Dept. will file a civil antitrust suit in Detroit, charging that the merger agreement, dated Oct. 12, 1959, may substantially lessen competition or tend to create a monopoly in violation of Sec. 7 of the Clayton Act. The two companies, the government charged, compete with each other in the manufacture and sale of finished products.

•

The eight-year-old Marshall Plan "overcharge" suit against several U.S. companies has been quietly dropped by the Justice Dept. The suit, filed in 1952, named Standard Oil Co. (N. J.), Socony Mobil Oil Co., the Caltex Group—Standard of California and Texaco—and several affiliates of each. The government lost its case against Caltex in both district and appeals courts last year. And last week it dropped the case against Socony and Jersey.

•

A new antiknock additive—TML or tetramethyl lead—"boosts the octane rating of certain gasoline components even more than tetraethyl lead," Socony Mobil Oil Co. announced this week. The product may also offer a solution to the uneven loss of octane between the cylinders of the same engine (PW—Sep.18'59,p53).

•

Michigan Wisconsin Pipe Line Co. has asked Federal Power Commission approval to boost deliveries by 175-million cf/d. The company wants to loop its mainline and add compressor capacity to boost its take from Harper County, Okla., by 100-million cf/d, and to buy an additional 75-million cf/d from Northern Natural Gas Co.

•

John E. Kenney is the new president and chief executive officer of Foster Wheeler Corp. He succeeded W. L. Martwick who, in turn, was elected chairman replacing Admiral Earl W. Mills, who retired Dec. 31. Kenney had been executive vice-president since 1958.

•

J. E. Gosline

K. H. Shaffer has been elected chairman of Standard Oil Co. of Texas. Succeeding him as president is J. E. Gosline (picture), formerly vice-president and assistant to the President of The California Co., which like Standard of Texas is a subsidiary of Standard Oil Co. of California. Shaffer will become president of The California Co. next June 1 upon the retirement of H. C. Teasdel. Shaffer, president of Sotex since 1955, joined California Standard in 1929. He has been assistant general manager of Socal's producing department and vice-president and assistant to the president of The California Co.

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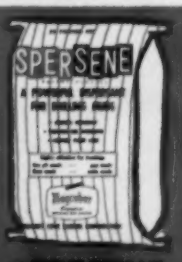

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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
January 8, 1960

The Federal Power Commission will start a new round of hearings on the CATC gas case next Tuesday. The CATC companies (Continental Oil Co., Atlantic Refining Co., Tidewater Oil Co., and Cities Service Production Co.) must "adduce additional evidence" before FPC to support the prices to be charged Tennessee Gas Transmission Co. for offshore Louisiana gas sales.

The rehearings will be in line with an order of the U.S. Supreme Court. The original contract prices for the gas to be sold by CATC were 21.4¢ per Mcf, with a 2¢ escalation every four years. The reserves total more than 6-trillion cu. ft., and are convenient to TGT's pipeline system. FPC approved the 21.4¢ price in 1957, but the U.S. Third Circuit Court of Appeals upset the FPC certification in 1958. Last year the Supreme Court upheld the appeals court and ordered the rehearings.

At issue will be a price cut. Intervenors in the case appealed FPC's 1957 order to the courts, arguing that the commission should have conditioned the certificate to require a lower price. The Supreme Court, siding with the intervenors, ordered FPC to reconsider several areas of argument: not only the need for the gas, but additional field-price testimony, and a showing that the "public convenience and necessity" required that particular gas at that particular price. The court also told FPC to consider the effects of the certification on other prices.

The court did not say FPC should require a lower price, but did imply that such should be considered. Lawyers interpret the CATC decision as telling FPC to consider seriously a clear condition when the requested price is strongly challenged. One factor may keep the new hearings on CATC from giving a solid indication of FPC's reaction to the Supreme Court ruling, however. The Louisiana Gulf Coast pricing pattern has changed since the spring of 1957, and the commission will have to consider present prices.

•

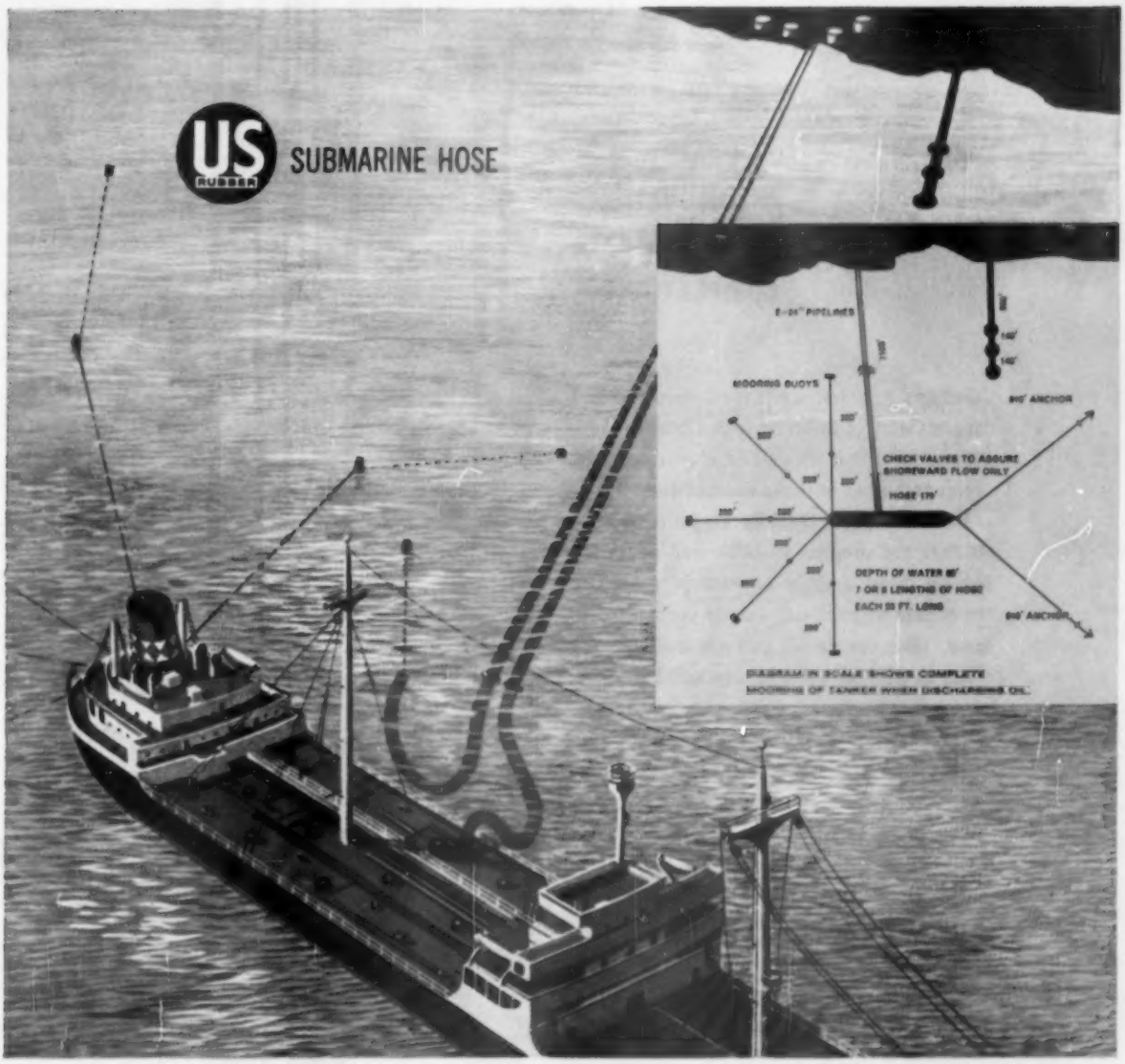
Settlement of the steel strike (page 12) means early Senate consideration of a higher minimum wage bill. Senate Majority Whip Mike Mansfield (D., Mont.) has said a school bill probably will be the Senate's first important agenda item this year. Next may be legislation increasing the minimum wage to $1.25 an hour—a measure which could affect many petroleum retailers. The steel strike would have thrown off the Senate schedule, but settlement puts the minimum wage near the top of the list for action.

•

Numerous oil men soon will be served with subpoenas to testify in the Tulsa antitrust trial starting next month. The government has already listed 72 tentative industry witnesses (page 15), but some additions and deletions may be made before the trial starts. Meanwhile, subpoenas will be served on those whom the government plans to call as witnesses.

•

Coal men have lost one opportunity to oppose oil and gas in Congress. Rep. Wright Patman (D., Tex.), chairman of a joint economic subcommittee on energy problems, has abandoned some studious hearings started several months ago. Coal witnesses hoped the Patman hearings would help their goal of a National Fuels Policy.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The operators say that submarine unloading would be impossible without hose of this character. Foreign and domestic tankers use this undersea hose (7100 feet offshore) as a hook-up to pipelines discharging heavy and light fuel oil directly into storage tanks on shore. Expensive dock and wharfage facilities are eliminated. *The tankers are moored at sea.*

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The Baker Model "J" Snap-Set Dual Packer is the ideal upper packer in a practical two-packer parallel string hookup, such as shown in the schematic at right. This hookup allows zones to be unloaded and washed after the well head is flanged up. Note that the vital separation of zones is provided by the reliable, time-tested, high-performance Baker Retainer Production Packer.

Baker Snap-Set Dual Packers are available with hydraulic button-type hold-downs where high differential pressures are to be encountered from below.

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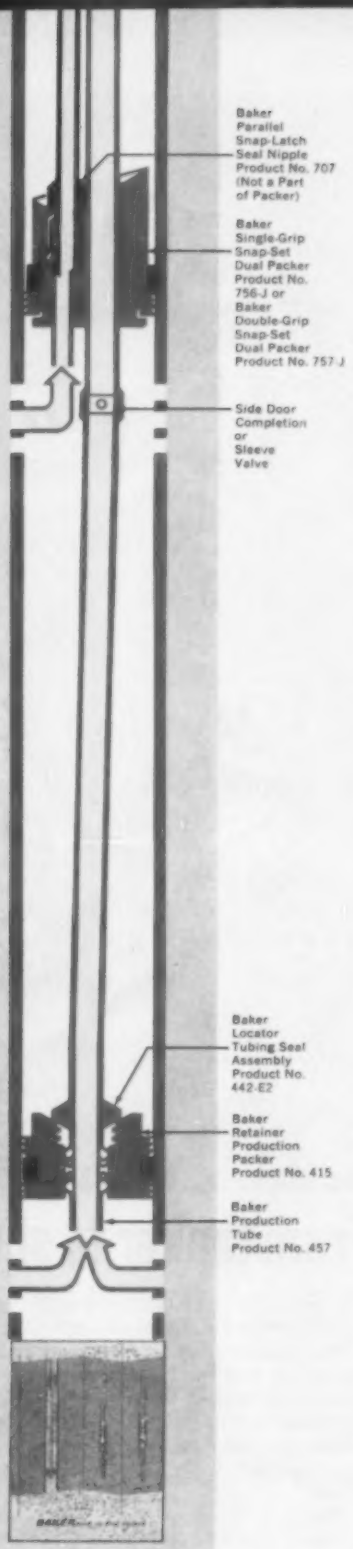
BAKER SNAP-SET DUAL PACKERS
Shown is the Model "J", Single-Grip, Product No. 756-J.


Baker Parallel Snap-Latch Seal Nipple Product No. 707 (Not a Part of Packer)
Baker Single-Grip Snap-Set Dual Packer Product No. 756-J or Baker Double-Grip Snap-Set Dual Packer Product No. 757-J
Side Door Completion or Sleeve Valve
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Baker Retainer Production Packer Product No. 415
Baker Production Tube Product No. 457

CATALOG SUPPLEMENT NO. 357 describes Baker Snap-Set Dual Packers in complete detail.

MANY GOOD SPOTS for drilling in 1960 are indicated by Petroleum Week's annual forecast. Odds are for . . .

Drilling to Post Solid Gains in 1960

Contractors and operators seem generally agreed that the revival in drilling and production will gain momentum in the year ahead.

The comeback in drilling activity that began in 1959 will pick up some of the luster that marked the industry's peak years of 1955 and 1956, when 56,850 and 58,271 holes were drilled, respectively.

While the expected total of at least 52,000 holes this year is still far below those peaks, compensating factors will lend more solidity to the over-all picture.

Domestic crude production, for instance, is expected to average better than 7.4-million b/d, up roughly 5% over 1959 (PW—Dec.30'59,p11).

Footage should total around 218-million ft. in 1960, a gain of roughly 10-million ft. over last year.

Better demand for a decreasing number of available rigs should keep most contract drillers operating at their best rates since the bottom fell out following the Suez crisis three years ago.

This should lead to some firming of contract prices.

With about 65% of the 3,400 available rigs needing repair or replacement, according to a U.S. Dept. of Commerce estimate, the pickup in drilling activity should accelerate the retirement of old rigs and hasten the day of supply-and-demand balance. Industry consensus is that this balance will be just around the corner by year-end.

Rockies Will Stand Out

This year could well be the best ever for the Rockies, which again will be a focal point of U.S. drilling activity.

The optimism of Rocky Mountain operators, contractors, and supply firms is tempered only by the caution that there will be some limiting forces arising outside the region.

There's reason for the high optimism.

The past year has been one of the best in the region's history, with about 4,750 holes drilled, compared with the peak of 4,956 in 1955. Outlook for 1960: at least as good as 1959, probably better.

More important is the fact that 1959 exploration has yielded discoveries in almost every area of the Rockies, a factor sure to stimulate 1960 drilling. What's more, many of the discoveries have been really significant.

The success ratio also has increased, in keeping with the larger number of discoveries. The gain, in fact, is largely due to this factor rather than to widely expanded exploration.

Real key to the outlook is this comment, typical of every regional operator interviewed by PETROLEUM WEEK reporters: "I haven't talked to anyone, large or small, who is cutting the 1960 budget below that of 1959. Most say they'll drill more wells next year."

There will be several standout areas in Rockies drilling this year.

Pure Oil Co.'s two discoveries on the Lisbon Valley-Dolores anticlinal trend in the northeast Paradox Basin is one example. In one of the two discoveries, Utah's first Devonian production has been established. This San Juan County venture also found gas in the Mississippian. The other wildcat, in San Miguel County, Colo., also found Mississippian gas (PW—Dec.4 '59,p26).

The entire western slope of Colo-

rado will be the scene of heavy activity. In the north, there will be a Cretaceous play for both oil and gas. Exploration in old fields has turned up new Weber production. The Weber, which produces at Rangely field, is a magic word in western Colorado.

Pennsylvanian discoveries in southwestern Colorado, east of the large Utah fields, also give promise of significant success in what has long been a stepchild of the Paradox Basin.

A major development program will materialize in the San Juan Basin of New Mexico and Colorado when gas demand warrants. The new target here will be the Dakota sand, which is below the major producing horizons in the basin.

Additionally, 1959 drilling in the Horseshoe Canyon and Verde areas in the northern end of the basin developed new oil potential.

Northeastern Arizona, where a good Mississippian discovery was completed last year, should not be overlooked.

The Denver-Julesburg Basin of Colorado and Nebraska has not been so active as in some past years, but the discovery ratio has held up.

Pennsylvanian development in southeastern Colorado and northwestern Kansas, along the Las Animas Arch, offers continued strong potential.

Wyoming will be difficult to overrate in 1960. The Green River Basin, in the southwestern corner of the state, which has been built up on the basis of gas potential, had important oil discoveries during 1959. It should be one of the most active areas in the region.

The Powder River, Wind River, and Hanna Basins of Wyoming have all had good discoveries in the past year and are apparently on the brink of substantial drilling. This is especially true of the Powder River Basin.

Central Montana, though without big discoveries in 1959, is expected to get a hefty play this year.

Important discoveries in Montana's Sheridan County and in North Dakota's Dunn and McKenzie Counties in the late stages of 1959 are expected to make this central region of the Williston Basin a standout in 1960.

South Dakota has had its best year, in terms of number of producers completed. Recent leasing there has been up substantially, indicating another banner year.

Texas: Steady to Better

All signs point to a year of increased drilling activity, over-all, in Texas. Gas exploration will be a mainstay.

Some Texas operators are very optimistic. Here are typical comments:

"The 1960 prospects look very good. In fact, we've got enough development work to keep us busy even if we don't do any exploration next year."

"The prospects look better than in many previous years."

A Petroleum Week survey of drilling programs for 1960 shows these typical reports:

A major that drilled around 1,150 holes during 1959 will do about the same in 1960.

Another major that drilled 670 holes last year plans to drill 715, including 115 wildcats.

An independent who drilled about 50 holes last year plans about 75 in 1960.

A major that drilled 805 holes in 1959 expects to drill about 30 more this year.

Most operators indicated that they would maintain about the same ratio of development to wildcat holes.

Best prospective areas in Texas for 1960 include:

- The deep gas trend on the Gulf Coast.
- The Edwards and new deep Wilcox trend in Southwest Texas.
- The Lower Frio trend in Jefferson, Galveston, and Chambers Counties.
- Gas exploration in the Panhandle, extending up through Oklahoma.
- Lower Cretaceous pays in East Texas.

The giant Permian Basin of West Texas is likely to run along at about the same pace as last year. One source estimates that some 6,000 holes will be drilled in that area in 1960, about the same as in 1959.

Generally, there will be considerable emphasis on deeper drilling in the state, especially along the Gulf Coast. There is an over-abundance of light rigs, but medium-to-heavy rigs are in tight supply.

NEXT WEEK in Petroleum Week

The new vigor apparent in Canada's drilling and producing industries is expected to gain strength in 1960. Some new areas —such as the southeast corner of the Northwest Territories—will be focal points of exploratory interest. Other key areas will see a surge of development work. Read next week's Canadian Outlook for a look at these developments —and some problems, too.

Offshore Looks Good

The Gulf offshore will be more active this year. Increased wildcatting will put a heavy strain on availability of mobile platforms.

One major company spokesman says: "Some of the operators off Louisiana will be in something of a lease-validation bind in 1960. So there probably will be more wildcatting there than during 1959. One indication of this is that mobile drilling barges are hard to come by."

A big offshore drilling contractor says: "With the exception of a few scattered tenders and self-contained platforms, 100% of the available equipment will be in use off the Louisiana coast.

"One big reason for the tightness of offshore drilling equipment is that much of the equipment is being used abroad. Higher rates in those areas are sucking the equipment away from the Gulf offshore. For these reasons, we expect higher rates off the Gulf Coast."

This contractor doesn't expect new companies to get into the offshore play. He adds that gas will be the big target.

Development drilling is expected to increase in the Galveston-High Island area off Texas because of discoveries there in 1959. But little wildcatting is foreseen.

The California offshore continues to gain strength.

Standard Oil Co. of California will be using two platforms at Summerland, site of a field discovery in 1958.

Other operators may go into the platform-and-development stages with their offshore leases in Santa Barbara County.

California: Little Change

California onshore drilling is expected to hold about steady this year, with emphasis on gas exploration. Most significant trend: the declining role of the independent.

This year's total number of holes drilled should approach the approximately 1,550 drilled in 1959. Of those drilled last year, 52% were drilled by seven majors (General Petroleum, Richfield, Shell, Stancal, Texaco, Tidewater, and Union).

In 1958, these majors drilled only 36% of all holes, about the same as in 1957.

Most observers say it will take a price increase or a trimming of imports to bring back the independents in California.

But those that have remained active have joined the majors in turning

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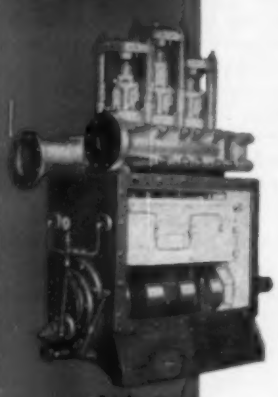

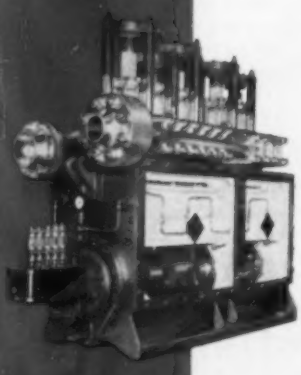

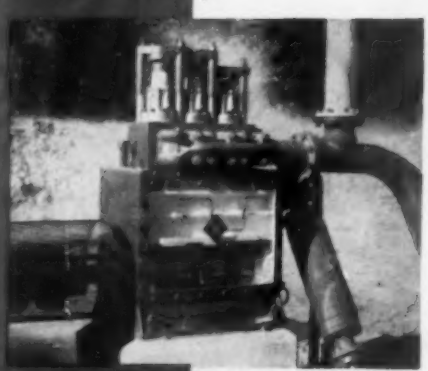

ECONOMICS TODAY

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more of their efforts towards gas, which is readily marketable.

The result will be a continuation of the drilling boom in the Sacramento Valley, California's traditional hunting ground for gas.

Other areas that may be active, depending on follow-up efforts, are Culver City, in the Los Angeles Basin, and Lakeside, in Kern County.

South, Mid-Continent Strong

Drilling activity should continue generally steady to somewhat better in Louisiana, Arkansas, Alabama, and Mississippi.

Reaction seems mixed on some aspects of the play. Some point to Mississippi's deep successes and others say sands are thicker in Louisiana. But most agree that Mississippi will post a good total of holes drilled (550-575) in 1960.

A recent important discovery in the Black Warrior Basin, straddling the Mississippi-Alabama line, could spark heavy drilling there.

Observers also generally agree that drilling will be up a bit in Arkansas, with North Louisiana holding steady.

The Arkansas River Basin in northwest Arkansas will be the focus of heavy gas drilling. This could reach near-boom proportions if sufficient pipeline outlets are available.

Louisiana as a whole seems headed for a year much the same as 1959, when about 3,825 holes were drilled, including 360 offshore.

Oklahoma and Kansas will have some very good spots.

The Oklahoma side of the Arkansas River Basin, known as the McAlester Basin, will be in for its share of gas exploration.

Activity in the Anadarko Basin of northwestern Oklahoma (and into the Texas Panhandle) also will hinge heavily on establishment of new gas outlets.

The Hugoton Embayment area will continue to be a strong spot, helping to make the western third of Kansas one of the nation's better areas for drilling this year.

The Marion County area of east-central Kansas had a good shallow play in 1959, based on revival of interest in the old Mississippi Chat. This play will continue.

Other Areas Bear Watching

Other states also will contribute to the general upturn in 1960.

Alaska undoubtedly will have a peak year in both wildcatting and development drilling. The Swanson River and Kenai Units will be key spots for development work; wildcatting will be widespread.

Kentucky's Green County play has already slowed, but heavy "post-hole" drilling will continue to expand in neighboring counties, and south into Tennessee. The latter could furnish one of the more interesting exploratory stories of the year.

The hunt for deeper production will be a major factor in Illinois, where optimism is running high. An influx of out-of-state operators was being noted as 1959 closed. The Siloam area, in the west-central part of the state, will be the scene of brisk drilling, as will southern Illinois, where new deep production is being found.

Adjoining Indiana should also enjoy a stronger year, with new drilling expected in Warrick and Spencer Counties, in the southern end of the state, where two recent important discoveries were completed.

Northeastern Ohio's play in Ashtabula County should gain in tempo. Deep drilling in other parts of the state is expected to increase, with the year's results riding heavily on any successes in the deeper pays.

Michigan's Trenton-Black River play in the Scipio area, in the south-central part of the state, has grown steadily and should lead to further exploration for this pay in other areas of the state this year.

High success ratios have spurred the gas hunt in West Virginia. More of the same is seen this year.

And the trend to deeper exploration for gas in Pennsylvania again will be brisk this year.

Allowance must be made in any projection for the emergence of completely new areas. There's no reason why such shouldn't spring up in 1960, as they have in past years.

No major changes in drilling or production techniques are likely in 1960. But trends to slim holes, air/gas drilling, multiple completions, and automation will continue.

Slim-hole and air/gas drilling, particularly, are expected to show marked gains throughout the country, mostly due to improved technology, better equipment, and economics.

The move to more automation will see an increasing number of small, less-productive leases automated in 1960.

There will be a continuing upward trend in the number of secondary recovery projects, with conventional waterfloods the keystone of this push. This will add fuel to efforts in some states to put such production under more stringent regulation.

Canadian Sulfur Output Booms

Production of sulfur, an important byproduct of natural gas, has more than doubled in Alberta over the past year. Byproduct sulfur production in the province in 1958 amounted to 122,326 tons. It is estimated at around 300,000 tons for 1959.

The main gas fields now having sulfur recovery plants are Pincher Creek, Nevis, Jumping Pound, Turner Valley, and Okotoks.

Government officials say the present Western Canada production of 1,500 long tons daily could be expanded by another 2,700 long tons daily by 1961.

This growth, of course, depends on the gas market, say the officials.

The Canadian Mines Dept. in Ottawa also forecasts potential additional sulfur production of about 11,500 long tons daily from new sources and plants in the next 10 or 12 years.

Alberta Pacific Sulfur Co. currently is negotiating with two oil companies for the development of high-sulfur-content gas sections in the Panther River area.

Alberta Pacific is working out arrangements with Union Oil Co. of California and Canadian Homestead, Ltd., for a sulfur recovery deal from 36,850 acres in the Panther River area.

Under the proposal, the oil companies will do the drilling, while Alberta Pacific will handle the processing and marketing, pay for development costs, and pay a royalty on all sulfur produced and sold.

Drilling is scheduled to be started soon in deepening an 8,074-ft. dry hole drilled by Union and Canadian in 1957. It will be drilled to about 10,000 ft. to the Devonian.

The hole is 3 mi. southwest of Shell Oil of Canada No. 1 Panther River, which was dually completed last year for 7.2-million cf/d of gas from around 9,000 ft. in the Devonian and 6.2-million cf/d from around 12,700 ft. in the Mississippian.

The gas from the estimated 183 ft. of total pay in this well has a hydrogen sulfide content of 87%.

Shell recently announced it will drill No. 2 Panther River 2 mi. southeast of No. 1 as an 11,300-ft. Cambrian test.

Alberta Pacific also plans to build a $12-million sulfur recovery plant on the Union-Canadian acreage.

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Wireline Multizone Sampler Developed

A multizone formation sampler that needs no round-tripping equipment is being added to the growing family of wireline tools.

Developed by Halliburton Oil Well Cementing Co., the new tool is designed for use in sampling zones in wells that have been drilled to total depth, not while drilling is progressing as with Howco's CR (continuous retrievable) sampler announced last spring (PW—May15'59,p33).

The multizone wireline sampler achieves basically the same objective as does the conventional straddle-packer drillstem test, but with this important distinction:

Pipe and the main body of the tool need to be run just once.

W. A. Wallace, manager of Howco's formation testing section, says the tool offers:

- Time savings when several prospective pays are to be tested;
- An easy and rapid means of obtaining reservoir pressure data; and
- Lowered costs for the operator as a result of reduced downtime and manpower requirements.

The tool is a combination device, composed of a first-stage running-in assembly fixed to tubing or drillpipe and a second-stage sampler body that is run and retrieved on wireline.

Basic components of the running-in assembly are an open-hole type hook-wall anchor, straddle packers, and a series of ports or perforations through which the reservoir fluid enters the tool.

The sampler body consists of an overshot, a surface bleed-off valve, a sample chamber, inside and blanked-off gauges, and a tester valve.

The first step in getting a series of fluid samples and pressure recordings is to run the first-stage assembly and set the expandable packers above and below the test zone.

The test interval can be as little as 1 ft., or as great as the operator desires.

For the tool to be completely effective, however, an interval of not more than 5 ft. is recommended for any one run. This limitation is fixed by the capacity of the sample chamber.

Two sets of perforations are provided in the running-in assembly: the lower to divert reservoir fluid to a blanked-off pressure gauge; and the upper to fill the sample chamber with fluid.

The first stage is run in open position so that hydrostatic pressures are equalized within and outside the tool.

Bypass ports equalize the hydrostatic pressure above and below the packers and inside and outside the drillpipe.

After the first-stage tool has been set, the sampler assembly is made up on the rig floor and run in the hole on wireline.

Each section of the sampler barrel is 7 ft. long, 2⅜-in. OD, and will contain 9/10 gal. of fluid. As many sections as desired may be added, up to the weight limit of the wireline.

Recoveries up to 28 gal. have been reported for a single run, and larger recoveries are considered feasible.

The sampler body is seated on top of the running-in assembly, and positive connection is made by a slip-joint sealing element. The tester valve, which acts to close off the chamber during running, is opened by slacking off on the wireline after the connection has been made.

Two concentric tubes within the body of the tool provide fluid passages.

Fluid to the sample chamber enters the tool through upper perforations and flows through the annular space between the tubes.

When the tester valve opens, fluid begins to flow into the perforations, up the large tube's annular space, and into the sample chamber.

The recorder inside the sample chamber records only the pressure build-up as fluid enters the sampler.

The blanked-off recorder is outside, and records hydrostatic pressure going in and out of the hole as well as the formation pressure build-up during the test.

The multizone sample is the only sampling device incorporating a blanked-off gauge, Howco says.

Field testing of the tool so far has been limited to two wells in the Four Corners area of northwestern New Mexico.

Satisfactory results were reported from the more than a dozen runs made, although minor mechanical difficulties were encountered in a couple of instances.

Halliburton has since modified the tool and tested it in its experimental well at Duncan, Okla.

Additional evaluation is planned soon.

Drilling Is Tough at North Tejon

Operators in California's young and growing North Tejon field face two tough alternatives: Set a long casing string before production is assured, or risk substantial additional cost through the necessity of redrilling.

Some of the recent wells in the 2½-year-old field, located in Kern County, have demonstrated poor productivity in the generally low-porosity and low-permeability Vedder (Lower Miocene) sands.

Normally, such a problem might be solved with a minimum of difficulty simply by using an oil-base mud in drilling into the pay zone.

The use of oil-base mud in low-porosity and low-permeability zones counters the productivity-damaging factors of infiltration of water or clay materials from a water-base mud.

The North Tejon problem is due to a layer of basalt that averages about 1,500 ft. thick, varying from 200 ft. to more than 2,000 ft.

In addition to making drilling difficult, the heterogeneous and unconsolidated basalt has a tendency to slough, thus confronting operators with the possibility of costly fishing jobs.

In the early days of the field, operators carefully weighted the mud to hold the basalt back, and added bumper subs and safety joints to the drill string to guard against fishing jobs (PW—Dec.27'57,p18).

But oil-base mud, which is currently in favor to protect the pay formations, won't keep the basalt from sloughing.

Because of this, operators are forced to use water-base mud in drilling through the basalt.

This leaves the two costly alternatives.

The first alternative is to drill through the basalt with water-base mud, barely penetrate the pay sand, set casing, and switch to oil-base mud to drill through the oil sand.

Just enough of the oil sand—about a foot or two—is penetrated to show oil staining.

The operator then cements the casing and continues drilling using oil-base mud—taking a chance the formation will prove commercially productive.

This practice involves a risk of about $55,000, of which $50,000 is required for a string of 7-in. casing to

about 11,500 ft., and $5,000 for the cement job.

The second alternative is to drill through the pay first with water-base mud, establish production by formation tests, plug back to the top of the basalt, and drill a directional hole to the top of the oil sand.

In this operation, the directionally drilled hole is deviated about 50 ft. from the original hole, casing is set when the oil sand is reached, oil-base mud is introduced, and drilling continues through the pay formation.

This adds about $65,000 to the cost of the well.

Reserve Oil & Gas Co., which has had success in solving the problem, has found oil-base mud to be best for its completions.

Reserve has used this type of mud in seven wells, three of which involved redrilling operations. The other wells were completed by drilling through the pay sand with oil-base mud after setting casing at the top of the oil sand in the original hole. No directional hole was involved.

If the formation is capable of producing oil, even in limited quantities, says Reserve, oil-base mud appears to mean the difference between a small well and a very good well.

Conversely, if there is very little permeability, oil-base mud won't help at all.

The oil-base mud method costs about $20,000 more than using water-base mud, mainly because of the increased time required in drilling with casing in the hole.

The mud is used through a form of lease arrangement whereby the operator pays the supplier for the amount of mud lost and the cost required to put the remaining mud back in shape so it can be sold again, plus a nominal handling charge.

Total production from the 42 wells in North Tejon field amounts to about 10,000 b/d.

There are two producing areas: (1) the "main area," where the initial discovery was made in March, 1957; and (2) the "highway area," which was proved in February, 1958.

There are 16 producers in the main area, 14 of which produce from the Vedder sands and 2 from the Olcese sands. There are 26 producers in the highway area where production has been found in the Vedder, Refugian, and Eocene sands.

Four rigs are presently working in the field; two for Reserve and two for Richfield Oil Corp. (L.A.).

Mobil to Evaluate Pecos Prospect

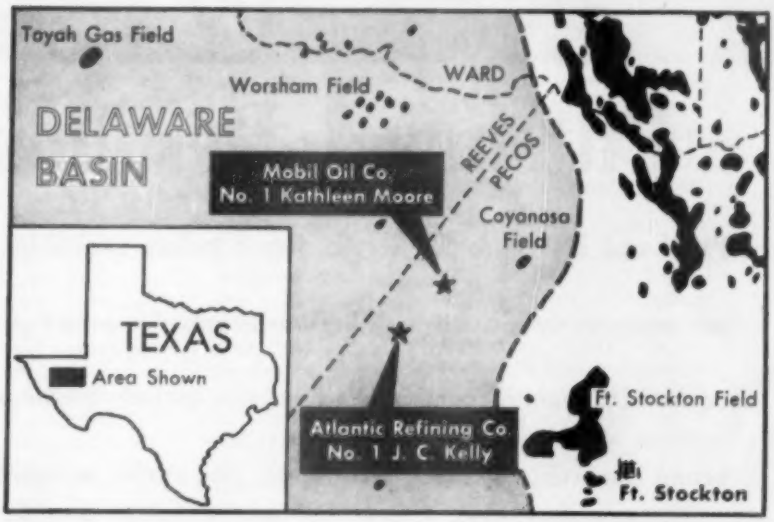
Mobil Oil Co. is preparing to evaluate the strong gas flow found four months ago in its No. 1 Kathleen Moore—a Pecos County wildcat regarded as one of the most important exploratory tests in Texas.

The company encountered the uncontrollable gas flow at 15,000 ft., but was unable to get an accurate gauge "because of the condition of the hole."

Some condensate, however, was discovered with the gas in the mud returned from the bottom of the hole.

Casing has been set in a sidetrack hole through the Wolfcamp lime and sand zones, where circulation was lost previously, and Mobil engineers believe they will be able to "mud up and evaluate the formation" when it is again reached.

Mobil was drilling below 14,360 ft. at last report.



Unexpected high pressures at the 15,000-ft. level where the gas was found led to difficulties that prevented evaluation of the pay.

Gas pressure pushed the mud back out of the hole, and Mobil was unable to maintain circulation while eventually drilling to 15,017 ft.

A company official described the problem this way:

"At the time of the near-blowout, our mud weight was about 12.9 lb. per gal.

"Later we used 16-lb. and 18-lb. mud, which was heavy enough to control the gas pressure on the bottom, but still was unsuccessful.

"Such heavy mud would break down and actually fracture the hole wall in the shallower Wolfcamp formation, where a portion of the fluid was lost.

"Thus, all the time we were pumping in mud and losing it, unable to maintain proper circulation, the gas continued to try to blow out.

"While we worked with this problem, the drillpipe became stuck."

Two months of difficulty—stopping the gas flow, fishing, and plugging back—preceded renewed drilling; this time in sidetrack hole.

The 4½-in. drillpipe was recovered to 12,759 ft.

At this point a cement plug was set above the fish left in the hole, and sidetrack hole was started with a 3- to 4-degree deviation from the original hole. The company's strategy is based on the belief that the casing in the sidetrack hole will allow it to use mud heavy and thick enough to control the high gas pressures expected in the deeper zones.

Mobil has already found shows at shallower depths.

An oil show was found at 10,890 ft. in the Wolfcamp. Drilling was stopped at 10,895 ft. and oil flowed at the rate of 15 bbl. per hour. Later, on gas lift, 59 bbl. of oil flowed in 4 hours.

The Wolfcamp, however, is not considered particularly promising.

Oil shows also were found in the base of the Leonard formation on

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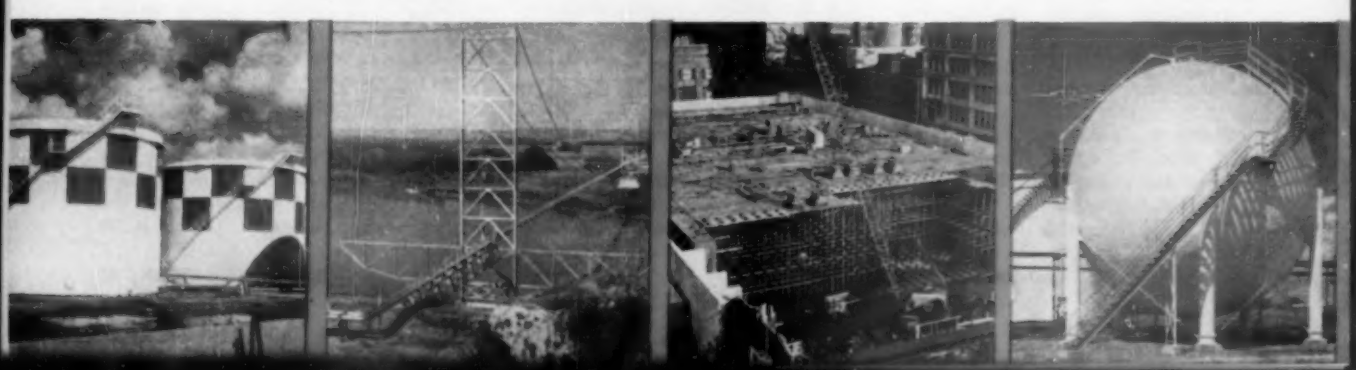

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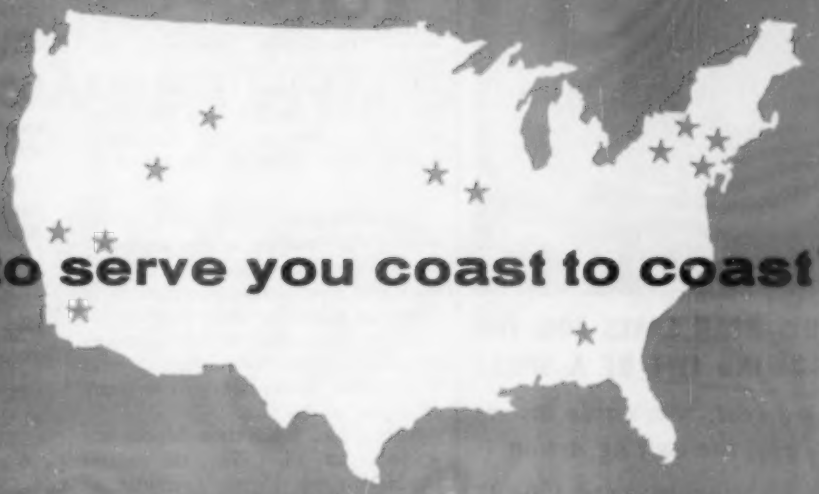

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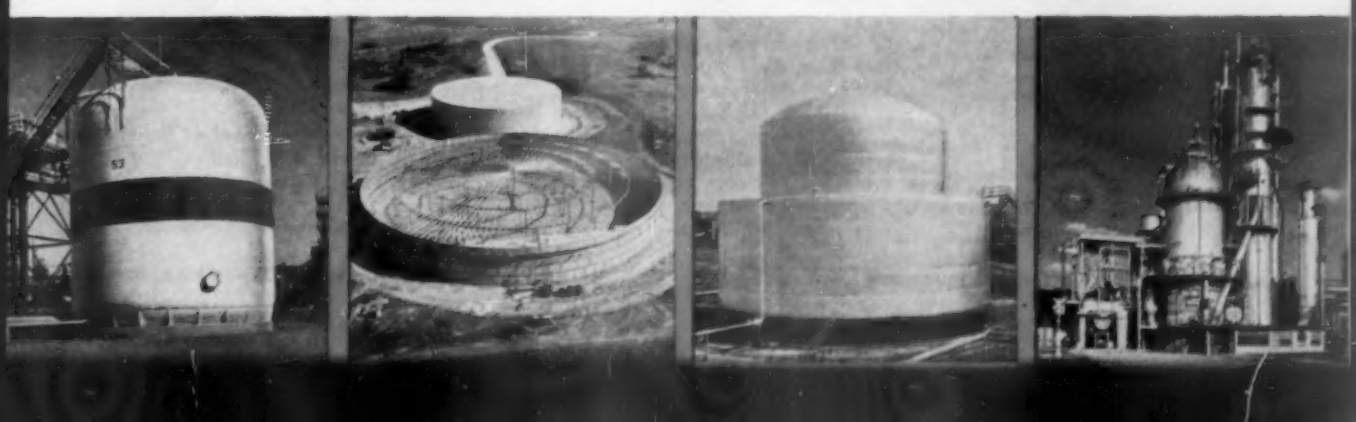

drillstem test at 9,838-90 ft., and in the Delaware.

No. 1 Kathleen Moore has a projected depth of 20,500 ft.

Still to be tested, barring further drilling problems, are the Pennsylvanian, Fusselman, Devonian, and Ellenburger formations.

Mobil says there is a possibility that the 15,000-ft. gas pay is in the Pennsylvanian, although the formation hadn't been definitely identified at last report.

The wildcat is located 22 mi. northwest of Ft. Stockton, on the southeast edge of the Delaware Basin—an area that has been long regarded as a potential giant for deep production.

So far, however, numerous attempts to find deep pays have failed to yield the necessary encouragement to touch off a play of any size.

When No. 1 Kathleen Moore was started (Jan. 14, 1959), the nearest production was 15 mi. southeast, in Ft. Stockton (Permian) field, and 15 mi. northwest, in the shut-in Worsham gas field.

Since then, Argo Oil Corp. opened up Coyanosa (Delaware-Lamar lime) field 7 mi. northwest with the completion of No. 1 Neal, which flowed 547 b/d of oil from 4,800 ft.

Mobil last week filed an application to drill No. 2 Ivy B. Emert as a 20,000-ft. test 1 mi. east of No. 1 Kathleen Moore. Drilling is expected to start soon.

The test takes on added significance in view of recent promising drillstem tests at Atlantic Refining Co. No. 1 J. C. Kelly, about 8 mi. southwest, also in Pecos County.

On the first test, gas flowed at the rate of 1.7-million cf/d from 15,798-873 ft. in the Devonian.

The second test, made at 15,873-923, also in the Devonian, yielded gas at the rate of 15-million cf/d.

The closest Devonian production is 36 mi. northwest, at Toyah gas field.

Operator was drilling below 15,954 at last report.

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What's New / IN PRODUCTION

Sales and Mergers

Utah Southern Oil Co. stockholders have approved the sale of the company's assets and properties to Texas National Petroleum Co. for $19.2-million.

Utah Southern, which is headquartered in Denver, has properties in Wyoming, Texas, Colorado, and Utah. It has an approximate annual crude production of 1,110,000 bbl.

Southern California Petroleum Corp., of Los Angeles, is selling the bulk of its production holdings to Producing Properties, Inc., of Dallas, for $4.3-million.

The sale, effective Jan. 1, is for $1.8-million in cash and the remainder in oil payments. Southern California's chief production holdings are in West Texas, southeastern New Mexico, and California.

White Eagle International Oil Co., of Tulsa, and Rotary Engineering Co., of Midland, Tex., have merged.

W. H. Helmerich, president of White Eagle, says headquarters for the combined operation will be at Midland. Under the merger, Rotary Engineering became a wholly owned subsidiary in exchange for 987,000 shares of White Eagle stock. Rotary will continue to operate under its present name and organization.

Yuba Consolidated Industries has acquired White Canyon Mining in an exchange of stock.

White Canyon has 29,000 acres of oil and gas leases in San Juan County, Utah. The acquisition, effective Jan. 1, was on the basis of 3 shares of Yuba stock for each 100 shares of White Canyon.

•

Lease Sales

Florida's state geologist says indications are good for discovery of oil in southern Florida's offshore waters if holes are drilled in water depths of 600 ft.

In a report to the Florida Cabinet, Robert Vernon said exploration has shown a series of salt domes at the 600-ft. depth mark.

•

The recent sale of leases on Indian lands in North and South Dakota brought $141,335 and $45,481, respectively.

Carter Oil Co. was high bidder in

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North Dakota, with a bid of $21.67 per acre for an 80-acre tract in section 11-151n-84w, McKenzie County.

Bids were made on 18,380 of the 24,344 acres offered.

In South Dakota, Texaco Inc. was high bidder with an offer of $5.12 per acre for four tracts in 16n-19e, Ziebach County.

Of the 37 tracts totaling 19,517 acres leased, Texaco was high on 9 and Amerada Petroleum Corp. was high on the other 28.

•

An Illinois independent has leased more than 20,000 acres in Maryland.

The acreage, which was leased by Joseph A. Dull, Mt. Vernon, Ill., is located in the southern part of Worcester County, below Snow Hill and between the Pocomoke River and Chincoteague Bay.

It is south of an area in which three dry holes were drilled in the early 1940s. Each of the three holes, one near Salisbury-Wicomico County Airport, one near Ironshore, and one near Ocean City, reached basement with no trace of oil. The holes ranged in depth from 5,000 to 8,000 ft.

•

A second case in which higher allowables are sought for wide-spaced areas is under consideration by the Oklahoma Corporation Commission.

John Buckingham, trial examiner, has completed taking evidence under an application filed by Odessa Natural Gas Co. for 80-acre spacing and 150% allowable production in newly opened East Harmon field, Ellis County. There are two wells in the field.

Republic Natural Gas Co., a month ago also asked the commission for higher allowables on 80-acre spaced units in the South Hovey area, Texas County.

•

Texas Atty. Gen. Will Wilson says Colorado Interstate Gas Co. should pay gross receipts taxes based on field sales and rent that it receives in Texas.

In an opinion to Ernest O. Thompson, Railroad Commission chairman, Wilson said several other interstate pipeline companies have similar questions concerning applicability of the gross receipts tax on natural gas which the state collects from utility companies.

•

Ike W. Taylor, of Lewistown, has been appointed to Montana's Oil & Gas Conservation Commission.

He replaces Don E. Hageman, who resigned, and will serve the remainder of Hageman's term to Apr. 1, 1960.

Taylor, a drilling contractor and independent producer, came to Montana in 1942 from his home state of Kansas.

•

Sinclair Oil & Gas Co. has changed its division office in Jackson, Miss., to district status.

The move, which became effective Jan. 1, was made to combine activities in the southeastern states under one division (New Orleans) in order "to permit better coordination and to prevent duplication of effort," according to William H. Morris, Sinclair president.

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Three maps showing the oil and gas activity in the east, west, and north parts of Utah have been published by Western States Map Co., Salt Lake City.

Each of the maps—which can be combined into one map 6 x 7½ ft.—is based on a scale of 4 mi. to the inch. The prices are: north Utah, $15; west Utah, $30; and east Utah, $35.

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Offshore California's third stationary drilling and production platform will be set up by mid-year northwest of Gaviota in water 90 ft. deep.

Texaco Inc., operator of Parcel D, which is held jointly with Monterey Oil Co. and Newmont Mining Co., has applied for a permit to build and maintain a pylon-supported platform (PW—Oct.30'59,p18).

The Texaco platform will join one already in operation by Standard Oil Co. of California offshore from Summerland, Santa Barbara County, and a second now being built also for the Summerland lease.

This lease, held jointly by Standard and Humble Oil & Refining Co., is operated by Standard.

•

Engineering

Drilling & Service, Inc., has developed a "Kelly Extension Drive" as a means of transmitting torque to the drill string from as high as 30 ft. above the rotary table.

With this tool, says Drilling & Service, an operator can drill as much as 50 ft. without breaking circulation or pulling the drill string to make a connection.

This, says the company, makes the tool useful in such jobs as diamond

coring, fishing, washover jobs, and spudding in a new well when added weight of extra collar is needed.

Hycalog, Inc., has introduced a new power swivel.

It is designed for shallow drilling, deepening of slim holes, coring in cable tool holes, and general workover.

Hycalog says the swivel eliminates the need for rotary table, kelly, and conventional swivel.

The power drive consists of integral twin hydraulic motors powered by oil delivered through hose from either a truck-mounted or skid-mounted power unit.

•

Drilling Highlights

Illinois—Aladdin Oil Development No. 1 T. E. Scott, section 21-15n-4w, Sangamon County, flowed an estimated 1,440 b/d of oil through perforations at 1,590-1,605 ft. in the Silurian Reef. The discovery is 15 mi. west of Mt. Auburn field and 4 mi. northwest of a single producer.

Utah—Sunray Mid-Continent Oil Corp. et al No. 1-B Utah-Federal, section 23-17s-22e, Grand County, flowed 5-million cf/d of gas from the Dakota, below 7,375 ft. The wildcat is 7 mi. west of Westwater pool, where gas is found in the Entrada and Dakota.

Southwest Texas—Phillips Petroleum Co. No. 9-A Bentsen, section 6, Los Maguellas Grant, A-411, Starr County, flowed gas at the rate of 5.3-million cf/d plus 508 b/d of condensate through small choke and perforations beginning at 9,270 ft. in the Vicksburg. The discovery also flowed gas and condensate on previous tests of two upper sections of the Vicksburg, but the well will be singly completed in the lowest zone. Nearest deep production is located 4 mi. southwest.

West Texas—Ralph Lowe No. 1 Magnolia-Morgan, section 14, block A-50, psl survey, Andrews County, flowed 498 b/d of 43.2-gravity oil through 18/64-in. choke and perforations at 11,212-56 ft. The Ellenburger lime discovery is in the 1-well Block A-50 Wichita-Albany (Permian) pool and 4 mi. southeast of Nelson (Ellenburger) field.

Colorado—Frankfort Oil Co. No. 1-9 State, section 9-21s-40e, Bent County, flowed 200 bbl. of 32-gravity oil in 10 hours through ¾-in. choke and perforations at 4,744-54 ft. in the Morrow. The discovery is 2 mi. south of McClave gas field and 18 mi. southwest of oil production.

West Central Texas—Ab-Tex Production Co. No. 1 W. A. Polk, J. Luce survey No. 15, Fisher County, was completed for 132 b/d of 42-gravity oil through 14/64-in. choke and casing perforations at 5,209-17 ft. in the Strawn. The pool opener is 1½ mi. southeast of Paul Hunter pool, which produces from the Canyon.

Ohio—Clay Oil & Gas Corp. No. 1 Metz, Canaan township, Wayne County, was completed for an estimated 1,480 b/d of oil and an undetermined amount of gas through perforations in the Clinton sand at 3,300-30 ft.

Oklahoma—Sinclair Oil & Gas Co. et al No. 1 Shupe, section 5-28n-22w, in North Buffalo pool, Harper County, has been triply completed. It flowed 102 b/d of 43-gravity oil through perforations at 4,567-79 ft. in the Lansing; 100 bbl. of 42.5-gravity oil in 10 hours through perforations at 7,252-56 ft. in the Viola lime (a new oil pay for the multizone field); and 17 bbl. of 48-gravity oil in 7 hours through perforations at 7,607-35 ft. in the Arbuckle.

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THE WORLD'S FIRST AIRLINE

Products Pipeline Push Seen for 1960s

Continued—and possibly dramatic—growth in products shipments by pipeline is expected to be the dominant development in petroleum transportation in the decade ahead.

This is the view of several pipeline spokesmen. It's supported by forecasts of continued expansion of the products market, based on its steady climb over the past decade.

On the other hand, a "quiet" decade is foreseen for crude line building. And several natural gas transmission companies report that only relatively minor new construction should be necessary to meet their market needs for the next few years.

Forecasts of heightened activity in products pipelines are based on the fact that products demand is outrunning pipeline capacity.

Some of the factors behind the over-all products market growth are:

- Increasing use of liquefied petroleum gas as an industrial, agricultural, and home fuel.
- The boom in the manufacture of synthetic resins, rubbers, and elastomers, of which many petrochemicals are essential components.
- The growing demand for new fuels, notably jet fuel.

In plans to serve the widening products market, pipeliners are known to be considering at least one big innovation: pipelines linking refining centers directly with major wholesale outlets.

There also should be an increase in the number of pipelines running directly to airfields.

In addition, new main transmission lines are likely to be built from supply sources to demand areas. One planned now is the line of Missouri-Kansas-Texas R.R. from West Texas to the Upper Midwest to carry propane, butane, and natural gasoline (PW—Nov. 6'59,p120).

And underground storage will continue to be developed to assure adequate supplies for peak demand periods (PW—Oct.30'59,p34).

In the 1960s, pipeliners will be watching with sharp interest for possible new developments—in the form of more lines and technological breakthroughs—in petrochemicals pipelines.

Demand for petrochemicals over the next five years is expected to climb at double the rate of products as a whole. Reason for the interest in expanding the still small networks of petrochemicals pipelines—now centered chiefly in the Gulf Coast area—is to provide the cheapest transportation possible to satisfy this anticipated burgeoning demand.

A spokesman for one major pipeline construction firm reports: "There are strong indications that the chemical industry is becoming more and more interested in pipelines for carrying raw materials to plants. We'll build several chemical lines next year."

If the forecasts hold true, the 60s will be the second consecutive decade in which increase in volume of products moved by pipeline led that of crude.

In 1958, pipelines moved about 934-million bbl. of products, and 2-billion bbl. of crude.

Over the last decade, however, the volume of products moved by pipeline increased by 200%, while the amount of crude carried rose less than 40%.

And the trend is expected to continue in the current decade.

Present crude pipeline capacity is generally felt to be adequate for transportation demands for the next ten years.

This is the conclusion of the House Armed Services Subcommittee, which recently took stock of transportation services that would be available in wartime.

"In hearings before the committee, it was pointed out that the volume of crude transported in the past several years has tended to stabilize," says W. S. Spangler, vice-president of Humble Pipe Line Co. "Statistics bear this out, but they also indicate that a products pipeline push is under way."

On pipelining's technological front, efforts in this decade—as in the last—should focus on two fields—automation and corrosion prevention.

At this time, nobody is prepared to predict just what refinements might lie ahead in automation.

One major company feels that the industry already has carried the applications of existing automation equipment as far as possible, and that the area to watch for advancement is research aimed at developing new kinds of equipment. What kind of equipment? It couldn't say.

In the fight against corrosion, look for pipe precoated with synthetic resins in a wide range of sizes.

Republic Steel Co. has already sold millions of feet of pipe, in diameters up to 5-9/16 in., which is coated with a high-density polyethylene by an extrusion process. By mid-year, it plans to make the pipe in diameters of 6⅝ in. and 3⅝ in. And at least three other big steelmakers are known to be planning similar products (PW—Nov. 27'59,p28).

Greater emphasis also will be put on improving internal pipe coatings.

Kinetic Device Speeds Blending

An automatic instrument that speeds up the blending of crude and volatiles in a pipeline, while boosting safety, has been developed by Shell Pipe Line Corp.

Many crude pipeline companies mix volatile products—notably liquefied petroleum gases—with crude for simultaneous shipment. Main reason: It's cheaper than other means of transportation.

But all of the products blended have much lower boiling points than crude. Thus the boiling point of the mixture is lower than that of the crude, and certain adjustments must be made in shipping.

Unless the vapor pressure of the mixture is maintained at a low level, —about 50 psi., if it contains propane, and about 12 psi., if it contains only butane and natural gasoline—the LPG will "boil off" as it leaves the line to go into storage.

The conventional way of maintaining the pressure is by manual control of injection rates at pumping stations.

With Shell's new instrument, blending is controlled automatically by a kinetic sensing device, which maintains a constant vapor pressure.

Here is how the instrument—called a Shell Kinetic Vapor Pressure Recorder-Controller—works:

Volatiles are injected into the crude stream through a pneumatically controlled valve about 100 ft. up-stream from the kinetic device. By the time they reach it, they're mixed.

As the stream passes the instrument, a jet ejector, or pump, in the kinetic-sensing device reduces pressure in the line until vaporization occurs. This pressure is measured, and if it exceeds

the normal level for the line, the device automatically slows down the pumps to lower pressure to the desired level.

By using a series of the instruments along a line, vapor pressure of the stream can be kept nearly constant.

And the kinetic device responds to changes in pressure so quickly that it can detect a variation and start correction within 25 seconds after it occurs at the blending point.

After using five of the automatic instruments on two of its lines, Shell reports that they make possible blending of bigger batches than would be handled by the slower, less-reliable manual controls.

Shell has installed the instruments on its Basin and Ozark pipelines at these stations: Colorado City, Notrees, and North Cowden, Tex.; Cushing, Okla.; and Jal Basin, N.M.

"We believe that the Shell Kinetic Vapor Pressure Recorder-Controller is the answer to getting the most use out of the crude lines for volatile shipments from the field to the refineries," says J. E. Green, manager of Shell Pipe Line's technical services department.

The instruments also offer several safety advantages.

If the rate of flow in the line decreases, or if the flow stops entirely, the device will automatically cut off the injection of the volatiles.

In the event of a malfunction of the instrument itself, volatile injections will automatically stop.

Accuracy and reliability of the instrument has been proven in tests, Shell says.

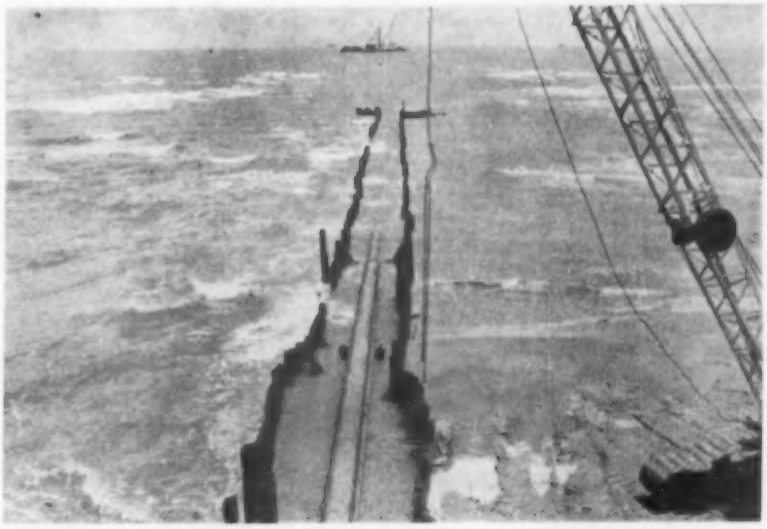
In field tests, vapor pressures maintained by the kinetic device were successfully checked against Reid vapor pressures.

The test consisted of charting actual pressures against Reid pressures at 12 points along a line. Result: All pressures charted were within the limits prescribed by the American Society for Testing Materials for reproducibility by different operators with different equipment.

Shell believes that other "uses" might be found for the instrument, but won't disclose what they might be.

"Although we are now using the recorder-controllers on pipelines, we are still experimenting to improve them and to discover how they may be used for other related purposes," a Shell spokesman says.

Rights to manufacture the new instrument have been licensed to Bernard Knust, of Houston, and to Hallikainen Instruments of California.



SULFUR LINE, just laid 7 mi. into the Gulf off Louisiana, consists of . . .

THREE PIPES, of which the inner two are constructed of a special, high-strength . . .

Alloy Adapted for 'Hot' Lines

A special pipeline, comprising three concentric pipes—two of special alloy steel—will be used soon to transport liquefied sulfur from the Gulf 7 mi. to shore, at Grand Isle, La.

The line was specially made for Freeport Sulfur Co., which will use it to tap one of its offshore deposits—third largest in the U.S.

The line consists of an outer casing of conventional steel and two inner pipes of Jalloy, a manganese-molybdenum alloy steel developed by Jones & Laughlin Steel Corp.

This will be the first time the new alloy has been used for pipe, although it has had "extensive" industrial applications. Jones & Laughlin says it has "high strength, ductility, and weldability."

The outer casing has a diameter of 14 in. The inner pipes have diameters of 7⅜ in. and 6 in.

Sulfur will flow through the innermost pipe, which will be kept heated by water moving through the second pipe. The outer line will serve as a protective casing for both.

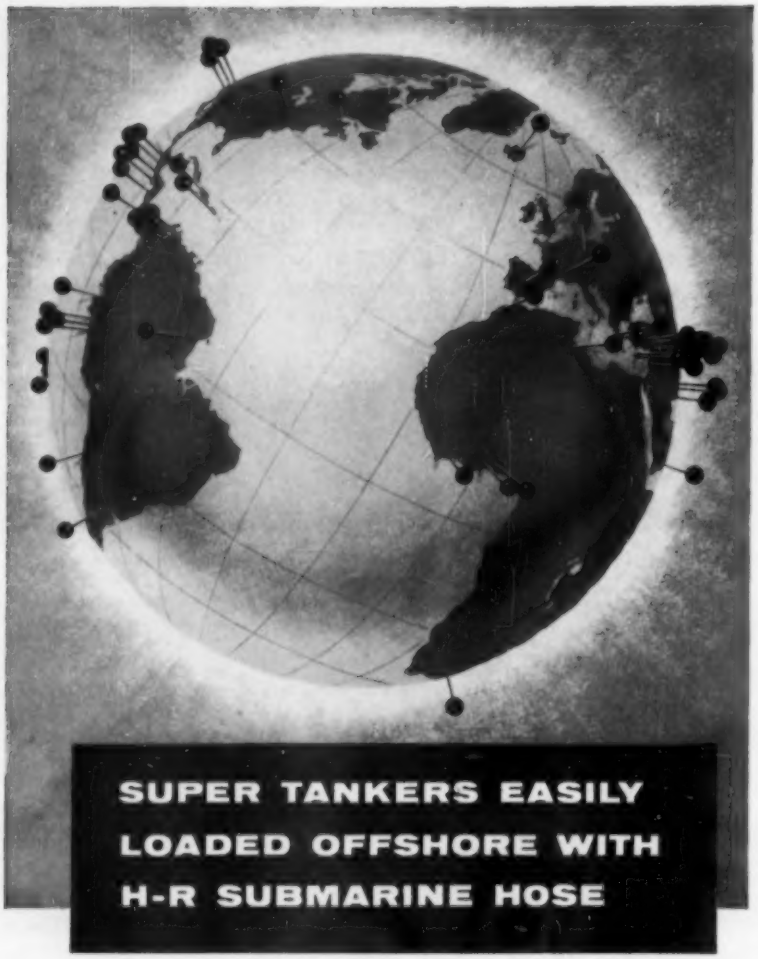
Operating temperature of the inner lines will be about 300F.

Jones & Laughlin solved the problem of expansion of the line under high temperature without using expansion joints.

After the line was laid, the outer casing was placed in 10,000-psi. tension by exerting 270,000 lb. pull on both ends. While it was in tension, the ends were anchored.

The inner lines were then heated to 225F and allowed to expand a normal 35 ft. While expanded, the lines were fastened at their ends to the outer casing.

When the inner lines reach an operating temperature of 300F, thermal stress thus will be compressive, with combined stresses about 60% of the metal's yield strength. If the lines are cooled to atmospheric temperature,



Add Riverhead, Long Island, to the long list of ports where Hewitt-Robins submarine hose meets tankers at sea! Already on steady duty in such waters as the Eastern Mediterranean, Pacific Ocean, and Arabian Gulf, H-R submarine hose enables tankers to load or discharge through underwater pipelines connected to storage tanks ashore.

The Riverhead pipeline is 7,200 feet long. The hose itself (the first East Coast installation) is 175 feet long. It is reinforced with multiple layers of heavy fabric and steel wire, and can take an end-to-end pull well in excess of 115,000 pounds. It withstands high internal pressures from ships' pumps and the external pressure of a 67-foot depth, and resists kinking and flexing action during rough water usage.

H-R submarine hose resists both coral abrasion and rot, and has given over 10 years of continuous service in installations abroad. It is available in sizes up to and including 16" internal diameter. For information or service, contact your local H-R representative, or Hewitt-Robins, Stamford, Connecticut. **Ask for Bulletin 1-20.**

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thermal stress will evidence itself as tension, and combined stresses will be about 70% of yield strength.

The result is that the possibility of longitudinal movement of the pipes has been greatly reduced, eliminating the need for expansion joints.

Capacity of the line is 4,500 long tons of sulfur a day.

The sulfur will flow into insulated tank barges, which will take it to Port Sulfur, La.

Estimated total cost of the new line is $30-million.

What's New
IN PIPELINES

The Federal Power Commission will open hearings Feb. 1 on Colorado Interstate Gas Co.'s plan to spend $91-million to increase the capacity of its system by 510-million cf/d.

It wants to build a 352-mi. pipeline from the Texas Panhandle to Denver and a line from Green River, Wyo., to Provo, Utah, and to add 78,000 compressor hp.

The additional gas will go to El Paso Natural Gas Co. (PW—Dec.18 '59,p50), and customers in the Rocky Mountain area.

•

Coal interests, at first warily unopposed to the U.S.-Canadian plan to jack up natural gas imports to the U.S. West Coast, now are changing their tactics.

In an effort to nail down "a just and reasonable" price for the 654-million cf/d of new gas, several coal industry groups are asking to be allowed to intervene in Jan. 5 hearings before Canada's National Energy Board (PW—Dec.18'59,p50).

Just a few weeks ago, at Federal Power Commission hearings on the U. S. leg of the planned pipeline, coal interests indicated they were unopposed to the boost, since coal wasn't a competitor in the proposed market.

•

A single-channel, ship-to-ship radiotelephone, first to go into use under a new Delaware River safety program, has been tested successfully on the S.S. Pennsylvania Sun, a new 50,000-ton Sun Oil Co. tanker.

Sun says it will equip 18 of its ocean-going tankers with the new navigational aids, for which an exclusive channel recently was allotted by the Federal Communications Commission (PW—Dec.11'59,p50).

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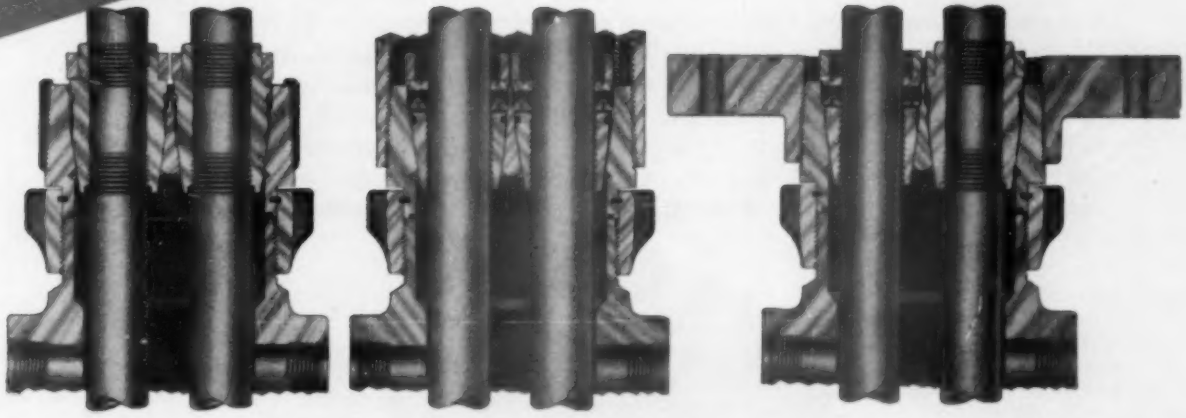

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DEPT/International

France Maps Bigger Grip on Oil

Formation of an integrated state-controlled oil company is aimed at sewing up outlets for Sahara oil.

(A report from PETROLEUM WEEK's *Paris Bureau)*

PARIS—The new year will bring two big developments in the rapidly changing French oil picture:

- Creation of a government-controlled refining and distributing company;
- An integrated Bureau de Recherches de Petrole, whose activities will run from exploration through distribution.

A good start has been made on both fronts.

A new government company, to be baptized Soc. Industrielle des Petroles (SIP), is already mapped out.

Its negotiations with California-Texas Oil Co. toward taking a 60% share in Caltex refining, distribution, and maritime transport facilities in France (PW—Dec.18'59,p18), are progressing rapidly to successful conclusion. SIP would market under a new name yet to be chosen.

And French Industry Minister Jean-Marcel Jeanneney is preparing to extend the powers of the government's Bureau de Recherches de Petrole (BRP).

These will be expanded to include refining and distribution as well as exploration.

A look at the principal SIP participants shows that these two closely linked developments stem from the government's need to find steady markets for Sahara crude produced by companies it controls.

Regie Autonome des Petroles (RAP) and BRP will each have 33.5% interest in the new refining-distribution company. SN Repal will have 20%, and the remaining 13% will be divided among four oil-finance outfits—Cofirep, Finarep, Repfrance, and Genarep. Interest in SIP, therefore, will be in direct proportion to the amount of Sahara oil each major partner will have.

Remember that RAP and its holding company, Sogerap, own 15% of Creps (in which Shell has a 35% interest). RAP has the right to 65% of the oil to come from Creps' Edjele, Zarzaitine, and Tiguentourine fields. SN Repal owns half of Hassi Messaoud production; and BRP, with 40.5% interest in Repal and 4.5% in Creps, has a share of Sahara production from both areas.

Caltex now supplies 4% of the French oil products market. It has a 22,000 b/d refinery at Ambes, near Bordeaux, capacity of which is slated to be increased soon to 30,000 b/d. It also has 1,367 sales outlets in France, including 180 service stations.

Caltex will also have a 10% share in one of two new refineries going up in Strasbourg (Shell has 85% and Socony 5%)—in which SIP would like to participate.

But 60% of the present Caltex network won't give SIP much of an outlet for its owners' share of Sahara production, estimated at some 175,000 b/d in 1961. Therefore, SIP will try to increase its refining and marketing capacity by buying into other existing chains if it can find more companies willing to sell part of their facilities. At the same time, it will push sales of its owners' crude to refiners and distributors in France and neighboring countries.

These projects are viewed with trepidation by seven groups that handle oil refining and distribution in France (PW—Jul.31'59,p16).

Their attitude is that Sahara crude would find markets if prices were cut, without French government pressure. As proof that they wish to cooperate, they point to the fact that they have made commitments to take increasing quantities of Sahara crude over the next three years.

Although contracts are not yet signed, tonnages tentatively agreed on are believed to be on the order of 76,000 b/d in 1960, 134,000 b/d in 1961, and 152,000 b/d in 1962.

The approximate breakdown for 1960 is: Caltex 6,000 b/d; Esso Export 10,000 b/d; British Petroleum 16,000 b/d; Shell 37,000 b/d; and Socony 7,000 b/d. In 1961: Caltex 11,400 b/d; Esso 26,000 b/d; BP 43,000 b/d; Shell 40,000 b/d; and Socony 14,000 b/d. In 1962: Caltex, 12,000 b/d; Esso 30,000 b/d; BP 49,200 b/d; Shell 45,000 b/d; and Socony, 16,000 b/d.

The seven established refiner-distributors have chalked up several new grievances against the French government in the past weeks.

First, they didn't appreciate Industry Minister Jeanneney's bypassing normal circuits with his plea to European Common Market governments to give preferential treatment to Sahara crude.

Then, they are irritated that the expected cut in the French government gasoline tax wasn't made.

Finally, they don't like the announced new tax of from 2% to 4% on industrial fuel oil, which will help pay for the reconversion of coal mines.

Now they fear that SIP will enter the stagnant French market with a big psychological advantage—that of offering products from national crude to the oil-proud French consumer.

They foresee diminishing returns on their heavy investments in French refining and distribution capacity, made precisely to find markets for their own Middle East production.

Some pessimists even think they may eventually have to pull out of France.

Government officials don't agree that an integrated national company is a threat. They say that SIP competition might be dangerous if it decided to set up a new refinery and distribution chain. But this is not the case.

Caltex was dissatisfied with its French operation and was seeking a way out. Future SIP deals will be made on the same basis, with willing sellers in established chains.

Antagonizing French distributors by aiming at their markets wouldn't make sense, they say, since SIP is likely for many years to have more crude than marketing capacity—an excellent reason to keep on good terms with other refiners.

The reason SIP was created, officials point out, is that in the oil business today, producers must be integrated to survive. They see no reason why this doesn't apply to government-controlled companies as well as private ones.

In the words of one government official, "If we don't have our own distribution system, government producers will be under the thumb of their clients. Their prices would soon be squeezed down so far that they'd be selling a barrel of oil for what it cost to produce."

Government officials have answers to the complaints made by refiner-distributors.

SIP isn't aimed against the existing

French chain (Cie. Francaise des Petroles and Cie. Francaise de Raffinage) they say. The proof: Government producers have sought a working arrangement with this partly government-owned group, with no success to date.

As for the five French affiliates of international majors, the government feels they have been treated royally and have no kicks coming. According to one government official, the international companies in France are strictly controlled, it's true—but they're amply compensated.

For example, he says, in neighboring countries the international majors sell refined products at lower prices than in France, where prices are set by the government, and where there is virtually no competition from Soviet oil. Further, they sell crude to their affiliates in France at more or less posted prices, payable in francs and partly convertible into foreign exchange.

Socony Expanding in North Africa

Socony Mobil is set to spread its oil hunt in North Africa. Last week it announced a deal in the French Sahara. Now it's working on another in Tunisia. The latter has not been finalized yet, but is confirmed by French sources.

In both cases, the ventures involve participation of Socony affiliates in oil rights held by companies controlled by the French government.

The U. S. major is already actively participating in its first such joint venture with a French company, in Gabon and the Congo, West African republics within the French Community. The first discovery under that pact was established in Gabon.

In addition, Socony holds extensive acreage in Libya, where it has a German partner, and where it made its first discovery at the end of October. It also has production in neighboring Egypt from long-established fields.

The Tunisian government is now weighing a proposed venture that would give Socony a 50% interest in the major part of oil rights covering southeastern Tunisia.

The acreage is held by Serept, a French-Tunisian company owned nearly 52% by the French government's Bureau de Recherches de Petrole and 30% by the Tunisian government. Its holdings, in eight permits, cover a total of 23,300 sq. mi. All but two small blocks of it are in the southeast corner of the country, and are bordered on the north and northwest by acreage held by Conorada Petroleum Co.

Although Serept has done considerable drilling in both north and south Tunisia, its sole discovery so far (and Tunisia's) is a small gas field at Cap Bon, in the northeast.

The 24-in. French pipeline outlet for the oil discoveries in the Edjele area of the French Sahara will run through the area of the proposed Tunisian venture, as well as the Sahara permits covered by the pact Socony has already concluded.

The line, now under construction, will run through southeastern Tunisia to the port of La Skhirra, starting from a cluster of discoveries in the French Sahara near the Libya border. These were established by Creps, a French government-controlled company owned 35% by Shell.

Thus, if Socony's Tunisian exploration venture jells, some pipeline capacity would presumably be ready and available for any oil found in either or both areas.

Under its French Sahara pact, Socony's French affiliate will have a 25% interest in about 8-million acres along the Libya border, 100 mi. north of the Edjele field.

The acreage was granted in March, 1957, to Cie. d'Exploration Petroliere (owned 51% by the French government's BRP), which has had four associates on the four permits covered: Hassi Tabankort, Temejide, Timellouline, and Hassi Imoulaye.

Subject to approval of the French government, the new pact provides that CEP retain a 38% interest, with 37% to be held by its four previous associates: Francarep, Coparex, Eurafrep, and the French affiliate of Ausonia Mineraria, exploration subsidiary of the privately owned Edison industrial group of Italy.

An extensive exploration program is planned for the Sahara acreage, on which the fourth and fifth wildcats are currently being drilled. The previous tests were dry.

CEP will remain the operator, with Socony providing technical assistance.

At present, CEP has two seismic crews on the acreage, in addition to the two rigs. Of the current tests, No. 1 Ouine Eslak is being drilled below 11,739 ft., 50 mi. north of Creps' Zarzaitine field, and No. 1 Gazelle below 11,345 ft., 30 mi. farther north.

Esso Scores Again in Libya

LIBYA—Esso has scored again in the Zelten area of central Libya with a new oil find in its fourth test.

The No. 4 Zelten, about 7 mi. south of the 17,500 b/d discovery, tested at the rate of 2,500 b/d of 39-gravity oil. No. 2 and No. 3 Zelten tested 15,000 b/d and 1,600 b/d, respectively.

No. 4 is now being tested, but no production figures were available early this week.

Meanwhile, Esso received government approval of a 50-50 deal for additional central Libya acreage held by Libyan-American.

Under the pact, concluded last May, Esso will earn 50% interest in three of the five Libyan-American concessions—including its discovery block, where the Mobruk well was potentialled at 1,200 b/d, and the Zahaligh well, on a different structure, is rated at 800 b/d on pump.

Esso will match the estimated $8-million already spent by Libyan-American's owners: Texas Gulf Producing (51%) and W. R. Grace (49%). It is expected that Esso will be named operator after about six months.

What's New / AROUND THE WORLD

IRAN—The International Consortium now expects to start limited exports in June from Iran's second crude-loading terminal—a deepwater installation at Kharg Island.

It has just completed a 99-mi. pipeline to the Persian Gulf island from the 31-gravity Gach Saran field, with gravity-flow capacity of 330,000 b/d.

Two of the four projected jetties at Kharg will be ready early in June; the other two are slated for completion in October.

•

LEBANON—Beirut will be the place and Oct. 17 the date, for the second Arab Oil Congress, Mohammed Salman, director of the Arab League's petroleum department, announced this week. Non-Arab countries invited to send observers this time: Argentina, Brazil, Mexico, and Indonesia—as well as Iran and Venezuela, which attended the first congress in Cairo last April.

•

NIGERIA—The Shell-BP company in Nigeria found oil in only 7 of the 34 wildcats it drilled there last year. It also drilled 16 successful appraisal wells, Shell International reported this week.

Shell-BP expects to be producing at least 30,000 b/d by the end of 1960—double its 1959 output—if development goes according to schedule.

•

LAOS—The first oil exploration program in landlocked Laos is about to get under way. Permits near the capital city of Vientiane, and Savannakhet, have just been granted to a French company following an agreement last spring (PW—Apr.10'59, p33). The company, which mines tin ore in central Laos, is Soc. d'Etudes et d'Exploitation Minieres de l'Indochine, a subsidiary of a French colonial holding company.

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UNITED KINGDOM—Esso Petroleum hopes to complete Britain's first large-scale commercial products pipeline in early 1963. This week it confirmed plans for a 75-mi., 10-in. line from its Fawley refinery to a new distribution depot near London airport. Initial capacity of the line will be 30,000 b/d, and total cost of the project $7-million.

•

IRAN—Williams Bros. Co. will start construction soon on a 240-mi. products line, a northeastern extension of National Iranian Oil Co.'s distribution system. The new 8-in. line will run to Sharud from Rey, near Teheran.

•

TRINIDAD—Panoil Co., of Dallas, plans to drill 12 more tests in the new East San Francique discovery area under its management contract with the British-owned Premier Consolidated Oil Fields, Ltd.

Panoil completed the discovery, No. 4 East San Francique, in December for 250 bbl. of 23-gravity oil in 15 hours through 12/32-in. choke from 800-30 ft.

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NEUTRAL ZONE—The Japanese Arabian Oil Co. is bringing in a second contractor to speed up its offshore drilling program. A two-year, $5.8-million contract, has been let to Seacat Offshore Drilling. The company's first two-year contract is held by International Drilling, which has now resumed drilling in the company's initial wildcat, which blew out and caught fire last summer.

•

BURMA—Burma Oil Co. will step up its wildcat and development drilling in lower and central Burma during 1960, according to a company report. Two deep rigs will be kept busy on the Irrawaddy delta area, near Bogale and Pogaung. The company, which has drilled six dry holes since 1957, says several light rigs will be used to develop the northern blocks of the old Yenangyaung field, 100 mi. southwest of Mandalay.

•

EGYPT—The power to grant oil rights in Egypt has been withdrawn from the General Petroleum Authority and returned to the Mining & Fuel Dept. under a new decree that makes the Ministry of Industry once again the government's top agency in dealing with oil companies.

GPA retains the right to act as policy-maker, but all decisions of its board will be subject to approval by the Industry Minister under an amendment to the decree. This also gives GPA the right to set up state enterprises for exploration, development, and refining, to import Egypt's oil needs and export surpluses, and to fix prices.

•

FRANCE—U.S. contractors are joining French firms for operation in the French Union.

The Robert H. Ray Geophysical Companies, of Houston, and Cie. Generale de Geophysique have formed Geografrance to operate the geograph, a seismic method employing a "thumper" or the dropping of a weight rather than an explosive charge, in Europe and the French Union.

•

JAPAN—Industrial consumers were continuing efforts last week to win a reduction in stiff new tariffs on crude and fuel oil imports before they're formally approved for the fiscal year starting in April. The government proposes to hike the rate on crude to 7% from 2%, and on fuel oil to 10% from 6½%.

•

ARGENTINA—Mar. 31 is the date for submitting bids to supply $15-million worth of oil installations for the Campo Duran field in Salta province. Specifications may be obtained for $120 at the New York, London, or Buenos Aires offices of YPF, the Argentine state oil agency.

•

Wildcats in the News

LIBYA—Socony has found the heaviest Libyan oil to date in its block 13 Hagfa test. Over 300 ft. of 12-gravity oil was recovered on drillstem test of a pay topped at 7,400 ft. The wildcat is Socony's second attempt in this area. A first test, 150 yards away, had to be abandoned because of drilling difficulties.

SOMALILAND—After three dry holes in the Dagah Shabel area, Stanvac's next test will be at Biyo Dader, 23 mi. west of Dagah Shabel and 30 mi. east of Berbera.

CUBA—The first producing well completed since the passage of stiff new petroleum legislation flowed at the initial rate of 80 bbl. per hour. Cuban Independent Oil Co.'s No. 3 well is the first completed in the shallow Jatibonico field since May, 1956.

What's Ahead for Processing in 1960?

- **More intense processing conditions will require larger, better adapted, more reliable equipment.**
- **Electronic computers will play an important part, although closed loop won't be an essential feature.**
- **Research and development will result in new products, and new petrochemical plants will be built.**

Refinery equipment of the future will have to be both larger and more complex, to keep pace with the development of more sophisticated processes.

"The rapid progress of organized sciences such as chemistry, metallurgy, engineering, and electronics will make available to the process industries larger and more complex equipment to operate at more intense conditions," says J. C. Ducommun, general manager of the manufacturing department of Standard Oil Co. (Ind.).

"We must not permit any lag in advancing the practical art of operating procedures. We must learn to scale-up and project our past experience to safely handle the massive problems involved when these new, bigger plants start up, shut down, or develop any erratic behavior."

One of the most dramatic developments in 1960 will revolve around the application of electronic computers to optimize, and eventually to control automatically, refinery processes.

An increased number of specific processes will be controlled by a "closed-loop electronic control system." But this, at least for this year, does not appear to be the major advantage to be derived from electronic computers in refineries.

"The information gained through the use of the electronic computer would have been of great value, even if the loop had not been closed," says a spokesman for Phillips Petroleum Co., referring to a recent closed-loop control installation at Sweeny, Tex.

"As a matter of fact, the actual automatic operation of the unit is less essential to the good economy of the plant than the optimization of the process that has been made possible by the use of the computer."

Concurrently with the increased use of computers, the caliber of instrument men in refineries will have to be raised.

"Our regular instrument man can maintain the miniature recorders, the control valves, pressure gauges, and such equipment," says G. M. Rose, refinery engineer of Tidewater Oil Co., Delaware City. "But an electronics specialist handles the work on our data logger, and other highly complex electronic units. It is almost impossible, I believe, to roll the two into one."

Continuous sampling methods and apparatus will become the rule in 1960. And so will methods for simplifying maintenance operations by continuous inspection of equipment on the line, thanks to radioactive and other modern instrumentation.

The oil industry, in the months to come, will devote more time and money to research than ever in the past.

Says C. E. Spahr, president of Standard Oil Co. (Ohio): "1960 will be the highest research year in our company's history, with emphasis on petrochemicals, where return on investment appears likely to be particularly attractive."

As a result of oil company research, 1960 will bring improved fuels and lubricants as well as new petrochemical raw materials.

- The race for higher research-method octane ratings will slow down. But there will be a continued effort to improve the road-performance octane rating of gasolines. Considerable thought will be given, in that connection, to elimination of part-throttle knocking.
- More ashless additives will be developed for lubricating oils (page 44).
- Greases without any soap, containing inert inorganic fillers, will become more popular for high-temperature applications.
- Work will be energetically pushed in the field of lubricants and hydraulic fluids satisfactory for space travel.
- Likewise, research will continue at a fast pace to develop adequate rocket fuels.
- Many new plants for the production of petrochemical raw materials will be built.

Imperial Uses Electronic Controls

The expansion of the Calgary (Alberta) refinery of Imperial Oil Ltd., recently completed, includes one of the largest installations of electronic control instruments in Canada.

The refinery was originally built in 1922. It had a capacity of 4,000 b/d and was gradually expanded to a capacity of 8,000 b/d. During World War II, an alkylation unit was installed to produce aviation gasoline, at the rate of 870 b/d.

The new expansion, which cost $14-million, brings the capacity of this Western Canada refinery to 14,700 b/d.

The four main process units of the refinery—distillation, cracking, reforming, and alkylation—are equipped with 120 electronic controllers altogether. Each of them maintains control over some important feature of the process.

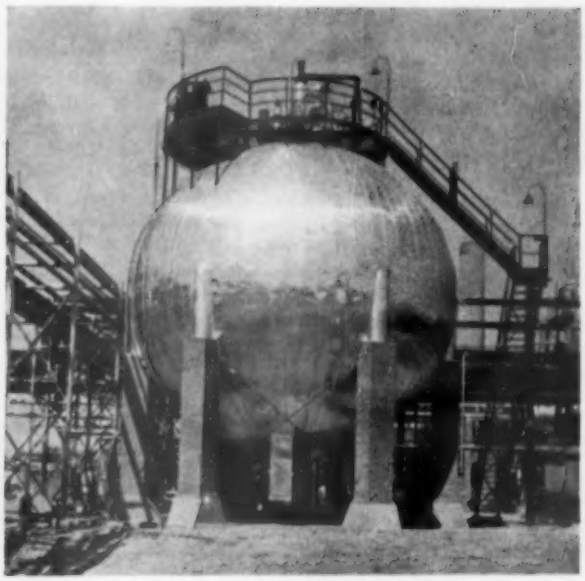
This control system was installed by Swartwout Co., of Cleveland.

All readings of the important process variables are transmitted to meters centralized in a single control room. Most of these readings are recorded on miniature-type recorders, while others are only indicated.

Controllers, using electronic transmitters, accomplish automatically the adjustments necessary to keep the process functioning uniformly.

There are no electronic computers involved.

While every phase of the refining processes is automatically controlled by means of electronic instruments, the system is no more self-automated than if pneumatic instruments had been used. Each variable, therefore, must be decided—and the control instruments set accordingly by the operators of the plant.



TWO METHODS of crude desalting are chemical, such as at Continental Oil Co.'s Ponca (Okla.) refinery (left) and electrical, as at the plant of Canadian Oil Cos., Ltd., at Sarnia, Ont. (right). Both are being used increasingly as . . .

Crude Desalting Grows in Favor

Desalting, originally applied only to crudes containing substantial quantities of salt, is now being extended, at an ever-increasing rate, to the treatment of all crudes, as refiners realize the multiple advantages of simultaneous desalting and dehydration of their crude charge.

Analyses of crude from all over the world show that salt is always present, in quantities varying from a few pounds per 1,000 bbl. up to more than 1,100 lb. per 1,000 bbl. Pennsylvania grade crude, for instance, contains only 3.6 lb of salt per 1,000 bbl., while Stroud crude from Oklahoma contains 1,137 lb. per 1,000 bbl.

Up to recently, it was customary to apply desalting processes only when the salt content in the crude exceeded 20 lb. per 1,000 bbl. This is no longer the case. Today, crudes containing as little as 1 or 2 lb. of salt per 1,000 bbl., and 0.1% to 0.2% basic sediment and water, are being processed for desalting.

"It has become our company's policy," says Paul Verity, of Foster Wheeler Corp., "to recommend desalting in every case, regardless of salt content. It is advisable even when you don't have a great deal of salt. Salt may not be present today, and may show up in the next shipment of crude."

Salt-water removal, and the removal of solids that accompanies the process, are today considered an essential insurance of economical refinery operation.

There are many advantages to removing salt and water from the crude prior to its initial distillation. Among them:

- The capacity of the crude still is actually increased when water is eliminated, or materially reduced, in the crude charge. Since it takes ten times as much heat to vaporize a pound of water as it does to vaporize a pound of oil, every barrel of water removed from the crude charge makes rooms for more than ten barrels of oil. Stillmen are aware of that condition; they automatically cut down their throughput when they know that their charge is being switched, and will come from a tank of nontreated crude.
- Maintenance costs can be substantially reduced when ash and inorganic solids are removed from the crude. These materials foul heat-exchanger tubes, tower bottom trays, and furnace tubes and headers.
- Cracking efficiency is increased. The concentration of metals which tend to poison the catalyst is significantly reduced when the crude is being desalted and dehydrated. All of the objectionable metals are not removed in the process, however, as some are dissolved in the oil and are not present in the form of suspended solids. The concentration of arsenic, a very detrimental metal during the cracking process, can be materially reduced by desalting.
- There is considerably less corrosion in equipment when the crude is desalted. This is true to some degree even of low-salt-content-crudes. Hydrolysis of salt in the crude oil forms hydrochloric acid, which is very corrosive to metal surfaces. (As a corollary result of desalting, the amount of ammonia and other inhibitors necessary to protect the distillation tower against corrosion can be cut down substantially.)

Use of desalting equipment results in a saving of at least 8¢ a bbl., and generally around 22¢ a bbl., according to a survey of users in the U.S. and abroad by Howe-Baker Engineers, Inc., and the Petreco and Tretolite divisions of Petrolite Corp.

Against such a credit, the cost of desalting is insignificant, the companies say; it runs consistently well below 1¢ per bbl.

Desalting of crude can be done either electrically or chemically.

The process of electrostatic coalescence of solids suspended in a fluid by a high-voltage current was first applied in 1909.

In the crude, salt is present in the form of finely divided brine droplets. When fresh water is added to the crude, and a high-voltage al-

ternating current—12,000 to 22,000 volts—is applied, the droplets of brine are attracted to one another and coalesce, carrying with them whatever solids are present; then they fall by gravity to the bottom of the desalter.

This principle is used by Petreco and Howe-Baker.

Chemical coalescence is produced by adding a surface-tension reducer —or de-emulsifying compound—to the crude, at high temperature. The result is identical to that obtained electrically. This process was developed in 1919 by Tretolite, and is now handled commercially by Petreco.

Until recently, desalters were installed in refineries on a rental basis only. This is no longer the case.

The initial cost of an all electrical desalting plant is about double that of a chemical desalter, but operating cost of the all electrical unit is substantially lower.

Desalting units have been built in the shape of vertical cylinders, spheres, and horizontal cylinders with dished heads. The latter design seems to be in favor now. It resists internal pressures up to about 250 psi., and, in sizes up to 100,000 b/d, can be shipped assembled on a platform car.

Ashless Additive for Aircraft Oil

An outstanding development in the field of lubrication this coming year will revolve around ashless additive lubricants.

Their purpose is to overcome engine noises, as well as other combustion trouble due to preignition caused by engine deposits (PW—Jun.12'59, p45).

This problem is particularly acute in aircraft engines. From the day the airplane became a popular means of transportation, refiners have been looking for an oil that would keep reciprocating engines free from carbon and gum deposits.

The difference in design between airplane and automotive engines is such that oil additives that do a perfect job in car engines fail completely in aircraft engines. The ash originating from the additives form deposits that cause pre-ignition, sticky exhaust valves, and fouled sparkplugs. As a result, until recently, aircraft oils contained no additives. To keep the engines clean, overhauls had to be made more frequently.

For the past ten years or so, refiners have been working on the problem. Tests indicate that, to be satisfactory, the lubricating oil should contain an adequate dispersant additive, and that, to be acceptable, such additive should be ashless.

One such ashless dispersant additive oil has been recently put on the market by Shell Oil Co.

This new oil, called Aeroshell Oil W, is said to contain both antiwear and dispersion additives. It is a multigrade lubricant, which can be used in small planes and helicopters, as well as in the largest aircraft piston engines.

Aeroshell Oil W 100, after extensive tests in all types of planes, and by commercial airlines all over the world, has been approved by all aircraft engine manufacturers, says Shell. It is being used now by the U.S. Navy, as a proprietary brand, but an Armed Forces specification is being prepared for an aircraft additive oil.

A similar additive oil, Aeroshell Oil W 80, is also available for very cold climates.

"It is true," a Shell spokesman told PETROLEUM WEEK, "that large aircraft of the future will be mostly of the jet-powered type. Yet thousands of piston-engine aircraft in operation in the U.S. and abroad will still be in service for many years. Think of the

History of Humble Oil AND Refining Company

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popularity of the DC-3 even today, 15 years after the end of the war.

"Besides, this new oil is of great value in private planes, and in helicopters, where a slipstream of oil is used to lubricate the clutch."

The ashless dispersant aircraft oil has many advantages over conventional nonadditive oils, according to Shell. The following are among the most important:

- Much cleaner engines. Ring grooves, oil drain holes, and propeller domes are free from deposits of sludge and lacquers. As a result, the engine overhaul period can generally be substantially extended.
- Reduced wear on engine parts. Piston ring wear is reduced up to 30%, Shell says.
- Easier starting and faster warm-up. This is due both to the cleaner engine and to the more uniform viscosity of the oil at various temperatures.
- Reduced oil consumption. Decreases from 12% to 40% have been reported by light plane operators as well as by airlines.

This oil is said to be entirely compatible with all nonadditive aircraft oils: The two types can be mixed with no ill effects should Aeroshell Oil W not be available.

What's New / IN PROCESSING AND PETROCHEMICALS

The production of maleic anhydride, a petrochemical intermediate widely used for the preparation of resins, is being increased considerably this year.

Scientific Design Co. is building four new maleic anhydride plants. One, with a yearly capacity of 24-million lb., is being erected at Fords, N. J., for Heyden Newport Chemical Corp. Two other plants—for Monsanto Chemical Co., in St. Louis, and for Monsanto Canada, Ltd., in Montreal—will have capacities of 40-million lb. and 6-million lb., respectively. The fourth, for Pittsburgh Coke & Chemical Co. at Neville Island, Pa., will produce 20-million lb. per year.

And a maleic anhydride plant with a capacity of 20-million lb. per year has been started at the Richmond (Calif.) refinery of Standard Oil Co. of California by Badger Mfg. Co. It will be operated by Oronite Chemical Co.

•

An 11,000 b/d catalytic reforming unit has been completed at the Lake Charles (La.) refinery of Continental Oil Co.

The unit, built for Conoco by Bechtel Corp., cost $3-million. The refinery handles 53-million b/d of crude.

•

Soviet scientists have developed a cracking method that uses nuclear radiation as well as heat, according to the Academy of Sciences of the U.S.S.R.

This method, the Russians claim, uses no catalysts, and the temperatures involved are much lower than the temperatures currently used in oil-cracking. They also claim that the products obtained are of better quality than those from conventional cracking methods.

Application of radioactive power to refinery processes is being currently studied by most refiners in the U.S.

•

A gasoline additive that contains both phosphorus and soybean oil is being promoted for its good anti-icing qualities, by Central Soya Co. of Chicago.

In extensive tests run in the laboratories and in the field by Standard Oil Co. of Ohio since early 1958, this additive, called Centrol S-41-K, appears to have eliminated the formation of deposits in the carburetor throat and on the throttle plate.

The recommended concentration is 50 ppm. The compound is said to be readily compatible with other additives that may be contained in the motor fuel.

•

Monsanto Chemical Co. and M. W. Kellogg Co. have settled out of court the lawsuits arising out of the design and construction of a methanol plant at Texas City, Tex. It is understood that a $9.5-million claim has been withdrawn by Monsanto, and that Kellogg has withdrawn a countersuit.

•

The Japanese firm of Showa Denko has been licensed to make oil furnace black by the Phillips process.

A plant, designed by Phillips Petroleum Co., will be built in Japan soon.

•

Celanese Corp. of America will expand its Houston high-density linear polyethylene plant to a capacity of 50-million lb. per year.

The plant, opened in 1957, was built for an ultimate capacity of 40-million lb.

•

A third expansion of Mobay Chemical Co.'s isocyanate production facilities at New Martinsville, W. Va., will bring its capacity to over 25-million lb. a year.

Tolylene diisocyanate is one of the main ingredients used in the manufacture of urethane foams, elastomers, and protective coatings.

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H. C. Price Jr. R. K. Shivel

HAROLD C. PRICE, JR., has been elected president, and **R. K. SHIVEL** vice-president, of H. C. Price Co., Bartlesville, Okla. **Harold C. Price, Sr.,** formerly president, becomes chairman. Price, Jr., joined the company in 1950, and became a vice-president in 1955, and executive vice-president in 1958. Shivel, who joined Price in 1928, has been general superintendent of the pipeline division since 1951.

BILL J. STORSETH has joined the sales staff at the Tulsa office of Vinson Supply Co. He was formerly general manager of Independent Perforators, Inc., and before that, was a district sales engineer for Lane-Wells Co., one of the Dresser Industries.

S. T. Pruitt S. Forbes

S. T. PRUITT has been named general sales manager of Ethyl Corp., New York, and **STUART FORBES** succeeds him as domestic sales manager. Forbes will report to Pruitt, and will have authority over the four regions of the sales department. **J. J. Frey,** assistant vice-president, continues to direct export sales. **W. K. McCulloch** has been named to the new position of sales manager for petroleum additives, which will cover all products sold to oil companies with the exception of antiknock compounds. **C. F. Naylor** has been named administrative assistant to the vice-president in charge of sales. In other promotions, **D. S. Flynn** succeeds Forbes as manager of the Central region, in Chicago; **R. D. Bushell** succeeds Flynn as assistant regional manager of the Eastern region, in New York; and **W. J. Rusher** succeeds Bushell as manager of the New York district.

JOSEPH P. MORAN is the new manager of the technical services and development department of the Dowell Division of Dow Chemical Co., with offices in Tulsa. Moran, formerly a reservoir engineer in the company's chemical research laboratory, replaces **J. A. Harmon,** who is now district manager for Dowell at Amarillo.

GO-WESTERN SERVICE, a wireline service company offering perforating and logging services to the oil industry in California, has been formed in Bakersfield. The new company is an association of Go Oil Well Services, Inc., Ft. Worth, and Western Wireline Service, Bakersfield.

ERNEST ALLEN, JR., has been elected vice-president and a director of General Technical Services Corp., Panama, R.P., and will be located in Paris, France. Allen, formerly owner and president of Core Laboratories of Venezuela, has been at the University of Texas for the past year. General Technical Services was formed early last year.

A. A. HARDY heads the new sucker rod engineering and research division, and **J. A. Getty, Jr.,** the new general products engineering division, of W. C. Norris, Manufacturer, Tulsa. Getty has been sales manager of the company's central division.

T. E. OBENCHAIN, C. R. FERGUSON, and **J. W. REINDERS** move to new field locations for Schlumberger Well Surveying Corp. Obenchain, formerly field engineer at Rock Springs, Wyo., has been promoted to sales engineer at Billings, Mont. Ferguson becomes sales engineer at Ft. Morgan, Colo.; he was formerly field engineer at Cortez, Colo. Reinders transfers to Lubbock, Tex., where he will become location manager.

WALTHER H. FELDMANN, president and a director of Worthington Corp., Harrison, N. J., is a new director of Babcock & Wilcox Co., New York. He succeeds the late **Vice Admiral Edward L. Cochrane, USN (ret.).**

WARREN W. HOMEYER has joined the St. Louis technical service staff of Oakite Products, Inc. Homeyer, who has been a sales engineer in St. Louis, recently completed an eight-week training program at Oakite's New York laboratories.

L. E. BLACKWELL has been appointed a product sales engineer for the instrumentation product group in the geosciences and instrumentation division of Texas Instruments Inc., with offices in Houston. Before joining Texas Instruments, Blackwell was a sales engineer with Reliance Electric & Engineering Co.

WENTWORTH SMITH, a vice-president of Neptune Meter Co., New York, and formerly head of the company's liquid meter division, has been promoted to marketing vice-president. **John J. Carroll,** also a vice-president, and formerly in charge of liquid meter sales, was promoted to general manager of the liquid meter division.

CHARLIE WHITEHEAD has been named assistant to the president of Wessendorff, Nelms & Co., Houston. He was formerly manager of machine tool sales for the company. In his new position he will assist customers with their manufacturing problems.

HOYT SPELMAN has joined American Mannex Corp., New York, as manager, tubular products, export sales. He was formerly in the export department of Republic Steel Corp.

R. Hickey M. Varnadere

RALPH HICKEY is sales representative at the new Tulsa office of Southwestern Pipe, Inc., and **MORRIS VARNADERE** is sales representative at the new Midland (Tex.) office. Hickey will be responsible for sales in Oklahoma and Kansas, and Varnadere for sales in West Texas and New Mexico. Hickey was formerly associated with L. B. Foster Co. in Houston, and Varnadere was an independent operator in West Texas.

J. W. (Bill) WALLACE is the new district salesman at Houston for Instruments, Inc., subsidiary of National Tank Co. In his new position, Wallace is in charge of all electronic and mechanical instrument sales to the production and pipeline departments of oil companies in the Gulf area. He was formerly Houston branch salesman for National Tank, at Houston.

J. W. Wallace W. W. Cathriner

WILLIAM W. CATHRINER has joined the sales staff of Dunwoody Pipe & Supply Co., Houston. He was formerly a senior sales representative for Hydril Co., in the Houston area. In his new position, Cathriner's territory will be the Houston and Oklahoma areas.

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A good, responsible petrochemical plant superintendent has to keep informed, and that's why he likes Petroleum Week – oil's most readable magazine. He is in charge of the personnel and equipment of a petrochemical unit or plant – normally a multi-million dollar responsibility – and he takes more than a passing interest in the important tools of his trade. Petrochemical plant superintendents are among the many thousand subscribers to PW who are actively and directly engaged in the refining segment of the oil industry.

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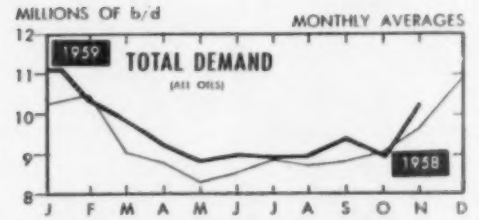
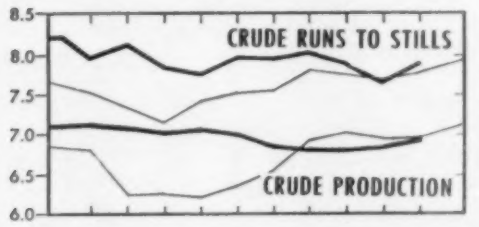
Petrochemical plant superintendent for independent refiner photographed near Houston by W. D. Murdy.

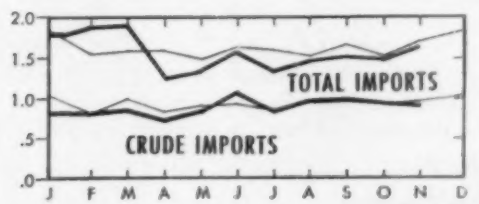
One of a series of portraits of oil industry management and operating men.

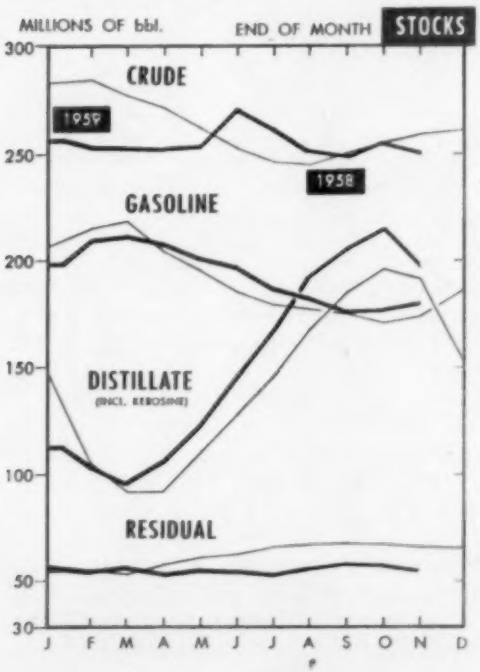
PETROLEUM WEEK'S

Fingertip Figures









Supply-Demand Figures for December

(millions of b/d)

	December 1959	% Change from year ago	12 Months 1959	% Change from year ago
Total Demand (Inc. Exports)	10.586	— 8.5	9.640	+3.0
Gasoline	3.994	+ 0.2	4.116	+3.6
Distillates (Inc. Kerosine)	2.956	—21.2	2.139	—0.8
Residual	1.839	—11.2	1.591	+4.3
Total Supply	9.699	— 4.8	9.656	+4.8
Domestic Crude	7.100	— 0.6	7.042	+4.9
Nat. Gas Liquids	.890	+ 1.7	.868	+7.4
Total Domestic	7.990	— 0.3	7.910	+5.2
Crude Imports	.944	—12.5	.956	+0.3
Product Imports	.765	—30.4	.790	+5.7

Figures for period ended December 31, except as noted

RUNS TO STILLS

Latest week	8.369
Previous week	8.266
Year ago	7.961

CRUDE PRODUCTION

Latest week	7.068
Previous week	7.992
Year ago	8.015

TOTAL IMPORTS

Latest week	1.662
Previous week	1.776
Year ago	2.179

CRUDE IMPORTS

Latest week	.906
Previous week	.992
Year ago	1.079

CRUDE STOCKS

Week ended 12-26	256.5
Previous week	256.4
Year ago	263.2

GASOLINE

Latest week	189.0
Previous week	184.0
Year ago	186.0

DISTILLATES

Latest week	175.6
Previous week	178.5
Year ago	154.0

RESIDUAL

Latest week	49.9
Previous week	50.5
Year ago	61.0

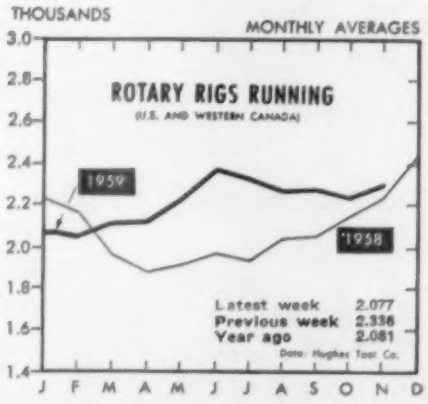
Total demand for all oils in 1959 didn't quite measure up to expectations, due largely to the lower industrial activity in the last half of the year and very mild weather in December.

The total demand of 9,640,000 b/d based on preliminary figures was about 100,000 b/d less than had been expected. The recent estimates had allowed for the impact of the steel strike, but apparently not for the mild weather in December.

In 1958, the December demand, influenced by extremely cold weather, averaged 11.6-million b/d. But last month, with the degree day count 23.3% less than in December, 1958, and 12.1% below "normal," demand was off 1-million b/d to an average of 10.6-million b/d.

Despite the curtailed domestic production in the latter part of 1959, and mandatory controls on imports, total new supply for the year exceeded demand by 16,000 b/d.

Most of the excess was due to higher-than-required supply in the early months of 1959.



The Market Trend

For 1960: No Two Markets Look Alike

Oil markets are a mixed bag of tricks at the start of the new decade. Surpluses in crude, refining capacity, and ships will be guiding forces for a long time to come. On the other hand, established marketing outlets will be in demand.

U.S. crude markets mostly look firm. However, watch for a softening in coastal crudes in Texas. Some buyers say these prices look 10¢ to 15¢ on the high side now.

Wholesale gasoline at home looks reasonably steady for a winter season. The steepest refinery price cuts have been confined to the Mid-Continent and the Upper Midwest. There are no discounts available in Los Angeles. At the Gulf, if you'd sop up a couple of weak premium-grade cargoes, you'd account for most of the easiness.

No. 2 fuel moved up 0.5¢ at most points along the East Coast this week. Cold weather has brightened prospects for this fuel. But December was misery for many New York sellers, some of whom reported sales off 15% to 30% from December, 1958.

Clean towing rates on the Mississippi have weakened, but black oil rates hold firm. Clean rates slipped from 0.225¢ a ton-mile to 0.2¢ with warmer-than-normal No. 2 weather in the Upper Midwest. "Little Big Inch" competition has hurt, too. Idle clean barges are sitting in Memphis and St. Louis, but dirty barges are fully employed because of steel mill demands for residual.

Foreign products generally are in surplus. A tip-off is the sharp bidding, from 7.5¢ to 8¢ a gal., to supply combat gasoline to Donges, France, for the military. Egypt has a surplus of gasoline and recently started exporting the product. In Italy, many independent refiners have closed up shop.

Foreign crude looks weak in all directions. Last week, Russian offers to Egypt undercut Arabian prices by 15%. On the other hand, some sellers in the Persian Gulf went so far as to offer to take native Belayim crude off the Egyptians' hands to close a deal.

Nothing Certain But Death and . . .

From Italy comes the story of a tax dodge that backfired. Lots of small refineries were put up after the war to evade the government's stiff excises on petroleum. With gasoline taxes representing 73% of the price of locally sold product, the black market flourished.

In recent years, however, Italy stepped up efforts to collect the taxes, and some of the slippery customers faded. Their favorite trick was to ship truckloads of water into Switzerland, thus freeing a similar quantity of products for local sale on the black market.

JP-5 Requirement:

The military is coming into the market for 63-million gal. of JP-5 fuel for use between April and September. Bids will be opened on Jan. 14.

Diesel Oil Bid 38% Off Posted:

A bid 5.5¢ below the market is the apparent winner of a contract to supply the New York City Transit Authority with 16-million gal. of No. 1-1½ diesel fuel for tank wagon delivery. Morania Oil bid 9¢ a gal. for the 12-month period beginning in March. Current tank wagon price is 14.5¢.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of January 4

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 98 oct prem....12-13
- Gasoline, 92 oct reg....10.75-11.5
- Kerosine....9.5-10.375
- Heating oil, No. 2....8.375-8.8
- Gas oil, 48-52 d.i....8.625-8.875
- Fuel oil, bunker "C"....$2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130....14.75
- Gasoline, 93 oct research prem....11
- Gasoline, 87 oct research reg....10.125
- Gasoline, 79 oct research....9.375
- Gasoline, 70-72 oct motor method....9.25
- **Kerosine....9.5↑-9.75↑**
- Heating oil, No. 2....8.375
- Gas oil, 48-52, d.i....8.625
- Fuel oil, bunker "C"....$2.00

New York Harbor, barges
- **Kerosine....10.1↑-10.6↑**
- Heating oil, No. 2....9.1-9.6
- Fuel oil, No. 6....$2.37-2.47

Okla-Group 3, northern shpt., bulk
- **Gasoline, 91 oct reg....10↓-11↓**
- Kerosine....10.5-10.75
- Heating oil, No. 2....9.5
- Fuel oil, No. 6....$1.60-1.80

Chicago, bulk
- **Gasoline, 91 oct reg....11.25↓-11.5↓**
- Heating oil, No. 2....9.625-11.35
- Fuel oil, No. 6 high sulfur....7.4-7.5

Los Angeles, rack
- Gasoline, 88 oct reg....11.5-12.65
- Diesel fuel, PS 200....7.75-11.25
- Light fuel, PS 300....$2.80
- Heavy fuel, PS 400....$2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3....4.5
- FOB Breckenridge, Tex....4

LP-Gas
- Propane, Oklahoma (Group 3)....5
- Propane, Baton Rouge....5.625-5.875

Pennsylvania Lubes
- Bright stock, 25 p.t....23
- **200 vis. neutral, 25 p.t....27↑**

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i....25-26
- Neutral, solvent, 200-210 vis....21.5-22.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i....25
- Neutral, solvent, 200 vis....21.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130....15.875
- Gasoline, 79 oct research....10
- Kerosine....10.125
- Gas oil. 48 d.i. minimum....9.625

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9....$2.62-2.97
- North Dakota, 36.0-36.9....2.62-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....2.92-3.22
  - West Texas, sweet, 36.0-36.9....3.00
  - West Texas, N.M., inter., 36.0-36.9....2.93
  - West Texas, N.M., sour, 32.0-32.9....2.71
  - East Texas, flat....3.05-3.25
  - Mirando, 28.0-28.9....3.31
- Illinois Basin, flat....3.00
- Pennsylvania Grade, Bradford dist., flat....4.40
- California, Signal Hill, 21.0-21.9....2.22-2.32†
- North Louisiana-Arkansas, 36.0-36.9....2.77-3.02
- Wyoming, sweet, 36.0-36.9....2.85-2.90
- Wyoming, sour, 32.0-32.9....2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.)....$2.38
- Leduc-Woodbend (Alta.)....2.53
- Redwater (Alta.)....2.42
- Steelman A (Sask.)....2.435
- Virden (Man.)....2.31

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido....$3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz....3.10
- Oficina, 35.0-35.9, Puerto la Cruz....2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay....2.30
- Bachaquero, flat, Las Piedras....1.75-1.88
- Tarra, 38.0-38.9, San Lorenzo....2.83
- Lagunillas Heavy, flat, Las Piedras....2.10

†*Differential per deg. of grav. varies.*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura....$1.90
- Safaniya, 27.0-27.9, Ras Tanura....1.50
- Iran, 34.0-34.9, Bandar Mashur....1.86
- Iran, 34.0-34.9, Abadan....1.81
- Iraq, 35.0-35.9, Fao....1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.67
- Qatar, 41.0-41.9, Umm Said....2.05
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud....1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud...1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon....$2.27
- Iraqi, 36.0-36.9, Tripoli, Banias....2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat....$2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- U.S. Gulf-New York, clean....(USMC+15%) $3.28
- U.S. Gulf-New York, dirty....(USMC+5%) $2.99
- **NWI-USNH, dirty....(USMC—45%) $1.51↓**
- NWI-UK/Cont., dirty....(Scale—45%) 17/10*
- Persian Gulf-UK/Cont., dirty...(Scale—48¾%) 24/11*
- **Persian Gulf-USNH, dirty...(USMC—60%) $5.08↑**

**Sterling.*

Sohio Streamlines Its Marketing

Look for several modifications in the marketing operations of Standard Oil Co. (Ohio) in 1960—as the company strives to improve its market position in the face of stiffer competition.

Among the major improvements planned are faster, cheaper communications; improved tank truck operations; better dealer training—and expansion of its marketing territory outside Ohio.

In its first major move outside of Ohio, Sohio hopes to complete its acquisition of Leonard Refineries, Inc., of Michigan, this year—if it can overcome a Justice Dept. suit to void the deal (page 16).

Leonard's stockholders last month approved the move, which will bring product from Sohio's 60,000 b/d refinery at Toledo into southern Michigan.

Leonard's own three refineries have a total capacity of 29,000 b/d, with sales ranging between $50-million and $55-million annually.

Sohio, which markets its own nearly $500-million volume predominantly through company-owned stations, will retain Leonard's independent dealer operations at its 537 service stations.

Sohio will also use the Leonard name in Michigan, and market its gasoline under the X-Tane trade marks which are familiar to Michigan motorists.

Sohio will drastically speed up its marketing communications system.

Under the new method, all original documents pertaining to individual transactions—sales, product transfers, customer changes—will be processed at the field offices and the data punched onto paper tapes by electric typewriter. This data will be transmitted after business hours to the central accounting office in Cleveland via leased telephone lines.

The taped data will be fed into Sohio's IBM 705 computer, checked for errors and evaluated, and shot back to the field offices by the following morning.

When the system is eventually installed in all Sohio field offices, tons of paper communications will be eliminated.

The first stage of installation—now under way—calls for follow-up documents to be sent to Cleveland for rechecking. But when the second stage is entered, Sohio will depend entirely on taped communications between Cleveland and the field offices.

A task force recently completed a review of all internal marketing control reports. In many cases where no one in the field was found to benefit from a report, it was dropped. Sohio reports that up to 30 reports have been discontinued.

Sohio is also attempting to speed up its tank truck operations with direct loading operations at pipeline terminals.

The new system, which is still in the experimental stage, bypasses terminal storage tanks by loading tank trucks directly from the pipeline. Sohio is not ready to announce any conclusions on this move as yet. But the step is viewed as part of a long-term program to reduce storage and transportation costs. All Sohio terminals have been equipped with fast-loading equipment and pneumatic-tube communications systems.

Sohio will also devote more attention to the training of its dealers and salesmen in 1960—with an emphasis on the fundamentals of selling.

Two task forces, comprised of home office and division sales managers, discovered last year that Sohio salesmen have been straying from fundamental selling techniques due to pressures from many directions. This year, all Sohio salesmen will be exposed to a sales program designed to bring them back to those fundamentals.

Under consideration, too, is a regular schooling course for dealers before they take over their stations. The course will go beyond the indoctrination and training that Sohio now gives many of its new dealers at its salaried stations.

Sohio's credit-card system is also being refined, and the company is studying a new optical scanning system for possible adoption.

Ohio Standard is following the trend toward longer validity periods for its credit cards; this year it will issue half of them for a two-year period. The address has also been dropped from the cards, in the interest of economy.

Coding for Addressograph-Multigraph Corp.'s new optical-code scanning system is being applied on all of Sohio's new credit cards. The company has not yet adopted this system, but it is watching the development very carefully. Sohio plans to test the system this year, and may introduce it over the next two years.

Food Fair Unveils Its Gasoline Outlets

Food Fair Stores, Inc., now offers gasoline and oil at three of its Philadelphia supermarkets. The food chain plans to open 21 more before the year is out—some of which will offer "complete service" (PW—Sep.4'59,p46). The newly opened outlets, such as one above at 6601 Roosevelt Blvd., sell only gasoline (regular at 25.9¢ and premium at 28.9¢ per gal.) and three grades of motor oil.

Humble Expands into 1960

The new Humble Oil & Refining Co. (Del.) will begin its first year of operation with marketing expansions in Arizona and Nebraska.

In two moves that observers believe will characterize the company's marketing activities throughout the early 1960s, the new domestic operating subsidiary of Standard Oil Co. (N. J.) took over new outlets in and near Tucson, Ariz., and in Lincoln, Neb.

The Arizona expansion represents Humble's second move in that state within six months.

In August, Humble Oil & Refining Co. (Tex.) purchased approximately 137 existing service stations in Arizona (PW—Aug.21'59,p50). At the time of the purchase Humble revealed that it had plans for further expansion in the state. Two bulk plants in Phoenix were reportedly acquired to provide storage for increased volume.

Last week, Humble began converting the 13 Tucson stations it just acquired from Southern Arizona Petroleum Co. In addition, three stations in Willcox, Benson, and Bowie, operated by jobber Wes Grantham, are also being converted to the Humble brand. These stations lie in southern Arizona, between Tucson and the New Mexico border.

To increase its storage capacity here, Humble is leasing a bulk plant in Tucson.

This year Humble is expected to begin building its own outlets in Arizona. But thus far, the company has confined its expansion to purchases of existing outlets.

The purchase of Lincoln Oil Co. brings Jersey Standard's marketing operations into the eastern end of Nebraska for the first time.

The purchase was actually negotiated by Carter Oil Co., which on Jan. 1 became a division of Humble of Delaware.

Carter's marketing territory had stretched from the Pacific Northwest down to western Nebraska.

In commenting on Carter's expansion into eastern Nebraska, C. D. Hill, manager of Carter's marketing department, said it is the company's intention to expand its marketing activities even further into both the urban and rural areas of Nebraska.

With the purchase of Lincoln Oil, Carter (Humble) gained eight service stations and a wholesale plant in Lincoln.

In addition, it plans to acquire additional service station sites in Lincoln.

This build-up of marketing strength in Nebraska and Arizona could pave the way for invasions by Humble into two new states—Kansas and California.

At present, Humble markets in 37 of the 50 states, with 27,500 retail outlets. But at the time the creation of the new Humble company was announced, M. J. Rathbone, president of Jersey Standard, revealed that Humble will eventually extend its marketing coverage to all 50 states.

'Magic Circle' Goes on the Air

Ethyl Corp. will bring its Magic Circle Campaign into radio and television during 1960, Russell B. Weston, head of Ethyl's advertising and sales promotion, told PETROLEUM WEEK this week.

After three years of tempting the nation's motorists onto the highways with magazine and newspaper advertisements and news features, Ethyl now plans to broaden its gasoline promotion campaign to other media.

The new campaign will largely follow the format established in printed media.

For radio, Ethyl will make available to travel commentators and moderators of women's programs, for example, descriptions of touring attractions which lie within the radius of a day's drive—the Magic Circle of the automobile.

Information on driving conditions and highway routes will be included—all intended to induce the listener to make greater use of his car.

This service will be similar to the program that Ethyl has provided for newspaper editors. Through its Magic Circle Travel Clinic, Ethyl has furnished editors a fund of travel information for publication in their travel columns. More than 150 major newspapers have made use of the service.

Late last year, a compilation of several Magic Circle descriptions was published in book form by Dodd, Mead & Co.

For television, Ethyl will edit travelogue films for presentation by local TV stations.

Ethyl will concentrate on destinations that are within driving distance of the viewer, modifying the usual armchair tour that characterizes most travelogues. While the latter usually serve as substitutes for travel, Ethyl hopes its TV films will induce viewers to drive more.

The Ethyl Magic Circle campaign could well set the pattern for the oil industry's cooperative gasoline promotive drive, which is expected to begin later this year (PW—Nov.20 '59,p18).

The American Petroleum Institute is holding a special marketing session in New York next week to lay the foundation for this $3-million campaign.

What's New
IN MARKETING

Dow Chemical Co. will market a year-round coolant—"Dowgard"—that replaces antifreeze and water in automobile radiators.

The agent will provide better heat exchange protection in summer and will protect cars against —40F weather in winter, says Dow.

The coolant will be sold in gallon cans, with a recommended annual drain period. It should not be mixed with tap water, Dow warns. "Dowgard" is composed basically of ethylene glocol, mixed with de-ionized water and an undisclosed chemical inhibitor.

Ford Falcons are currently being supplied with the agent.

•

DX Sunray Oil Co. expects a 4% increase in sales this year, after scoring about a 5½% increase last year, according to Robert O. Law, manager of market research and planning.

Part of the 1959 gain is attributed to the acquisition of 81 service stations and other properties from Tidewater Oil Co. in December, 1958.

The 1960 increase will be paced by the continuation of DX Sunray's rapid retail building program.

•

The average octane rating of regular gasoline in December was 92.4-octane, 0.2-octane higher than in November. Premium remained unchanged at 99.3-octane, according to Ethyl Corp.

Compared with December, 1958, premium gained 0.5-octane, while regular increased 0.9-octane.

Superpremium gasoline showed a range between 100.0 and 102.6 last month.

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DEPT/Personals

K. W. Brill

J. P. Malott

K. W. BRILL, vice-president, is the new assistant general manager of Continental Oil Co.'s Rocky Mountain region, with headquarters in Denver, and **J. P. MALOTT,** formerly assistant general manager in Denver, is the new general manager of the Western region, at Los Angeles. **Olen Lane,** Conoco vice-president in Los Angeles, continues in that capacity, and will devote his time to industry affairs. Brill, who joined Conoco in 1930, was named Rocky Mountain region exploration manager in 1951. He served one year as assistant southern region general manager for Conoco at Houston, before transferring to Oklahoma City in 1953 as central region general manager. He moved to New York as assistant to the vice-president in 1957, and was elected a vice-president in 1958.

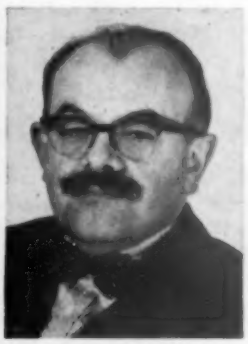
DR. AUGUSTUS B. KINZEL, vice-president, research, Union Carbide Corp., will receive the James Douglas Gold Medal of the American Institute of Mining, Metallurgical & Petroleum Engineers at its annual meeting in February. Kinzel was selected "for outstanding contributions and inspiring leadership in the field of electrolytic and electrothermic winning of nonferrous metals and for his notable administrative ability." He was president of AIME in 1958, and has been chairman of its finance committee.

D. R. WALL has been named manager of Mobil Oil Co.'s crude oil purchases and sales department in Dallas. Wall, who has been assistant manager of that department, will be responsible for purchases and sales east of the Rockies. **Charles R. Yarbrough** has been named natural gas manager for Mobil's exploration and producing department in New York. He has been natural gas superintendent for Mobil Oil of Canada, Ltd., since 1958. In the New York supply and distribution department, **Clarence W. Dole** is the new manager of distribution, and **William Kirk** is the new manager of the programs and analysis section. Dole was formerly assistant distribution manager, and Kirk was manager of General Petroleum Co.'s economics department in Los Angeles.

TEMPLE HILLYARD is in charge of the Anchorage office of the newly created BP Exploration (Alaska), Inc. The company is incorporated in Delaware, and will also maintain offices in New York.

KIRK HARDING, Gulf Oil Corp., Odessa, is the 1960 chairman of the Permian Basin Section of the National Assn. of Corrosion Engineers. He succeeds **Roscoe Jarmon,** Permian Enterprises, Inc., Odessa. Other new officers of the section

N. Y. Ruth



N. M. Ekserdjian

L. R. Murphy

N. M. EKSERDJIAN, N. Y. RUTH, and **L. R. MURPHY** have been appointed executive directors of the Iraq Petroleum Co. group. The new directors will serve on the boards of Iraq Petroleum Co., Basrah Petroleum Co., and Mosul Petroleum Co. Ekserdjian joined the management of the companies early last year, and is responsible for relations with governments, concessionary matters, and personnel policy. Before that, he was associated with the Gulbenkian interests, and was an alternate director of the IPC group, representing Participations & Explorations Corp. Ruth joined IPC in August, and is responsible for exploration and production. Before that, he was with Standard Oil Co. (N.J.), which he joined in 1954 as assistant coordinator of producing, in New York. When Jersey Production Research Co. was organized in 1958, Ruth was appointed a director. Murphy also joined IPC last year, and was given special responsibility for financial matters. Before that, he was with Socony Mobil Oil Co. as chairman of Mobil Supply Co., Ltd., and Mobil Shipping Co., Ltd., and managing director of Mobil Services Co., Ltd.

are: **Robert C. Booth**, Plastic Applicators, Midland, first vice-chairman; **Robert Weeter**, Mobil Oil Co., Midland, second vice-chairman; and **Al Mortimer**, Magna Chemicals, Inc., Odessa, secretary-treasurer.

BRYAN C. EDWARDS has been appointed assistant manager, gas sales, for Pan American Petroleum Corp., Tulsa. He was formerly division gas superintendent at Pan American's Canadian division, in Calgary.

B. C. Edwards

R. B. Stokke

ROBERT B. STOKKE has been elected treasurer of Esso Export Corp., New York, international marketing affiliate of Standard Oil Co. (N.J.). Stokke, who joined Jersey in 1937, has been on a rotational training assignment with Jersey's marketing coordination department, as regional coordinator for Latin America, since 1958.

DON M. SHIELDS, Sunray Mid-Continent Oil Co., Tulsa, is in charge of the crude oil purchasing and transportation for Suntide Refining Co., Corpus Christi, which was recently merged into the Sunray organization. Shields is Sunray's general manager of domestic crude oil purchases and sales. **J. M. Linehan** has been elected a Suntide vice-president, in addition to his duties as a Sunray vice-president.

W. S. McCREADY has joined Delhi-Taylor Oil Corp. as production supervisor, with headquarters in Dallas. He has been director of International Petroleum Co.'s engineering department at Talara, Peru. **O. W. Crisman**, formerly with Gulf Oil Corp., has joined Delhi-Taylor as district production manager at McAllen, Tex. He was Gulf's offshore district manager at Morgan City, La.

ROBERT J. BRADLEY is the new chairman and chief executive officer of Producing Properties, Inc., Dallas, and **Mac D. Oliver, Jr.**, succeeds him as president. **Virgil B. Harris** has been elected to the newly created position of executive vice-president. **Lionel E. Gilly** continues as financial vice-president and secretary. Producing Properties' executive committee includes Bradley, **A. Knox Tyson**, Houston, who was formerly chairman, and **deBenneville K. Seeley**, New York, who was vice-chairman.

HERBERT E. PAUL has been appointed general sales manager, Pacific Coast region, for Texaco Inc., with offices in Los Angeles. He succeeds **I. G. Morgan**, who was recently elected vice-president of the domestic sales department. Paul, who has been assistant general sales manager of that region since 1959, joined Texaco in 1932.

H. E. Paul

W. W. Rems

WILLIAM W. REMS becomes manager of Sun Oil Co.'s central sales division, with headquarters in Pittsburgh, and **Emory M. Osgood** succeeds him as assistant manager, central region. Rems succeeds **James O. Craig**, who is retiring after 37 years with Sun. Osgood has been manager of retail sales in the central region since the beginning of last year.

HOWARD G. VESPER, president of Standard Oil Co. of California, Western Operations, Inc., San Francisco, is the new president of the Western Oil & Gas Assn., trade organization of the oil industry in the six western states of Alaska, Arizona, California, Nevada, Oregon, and Washington. In his new position, Vesper succeeds **Olen Lane** of Continental Oil Co. Other new officers of the association are: **Howard C. Pyle**, president, Monterey Oil Co., first vice-president; **George F. Getty, II**, president, Tidewater Oil Co., second vice-president, and **T. H. Wallace**, vice-president, Western Gulf Oil Co., treasurer. **Felix Chappellet** was re-elected secretary, vice-president, and general manager of the association.

H. G. Vesper

G. D. Almen, Jr.

G. D. (Dan) ALMEN, JR., has been elected vice-president of Sinclair Oil Corp., New York. He is also vice-president and a director of Sinclair Oil & Gas Co., crude producing subsidiary of Sinclair Oil. In his new position, Almen will assist **F. A. Bush**, vice-president and chief geologist, in supervising Sinclair's foreign and domestic exploration and producing activities. Almen, with the Sinclair organization since 1946, was named assistant to the president of Sinclair Oil & Gas in 1953, and was elected a vice-president of that company in 1956. Before his transfer to the parent company, he headed the Houston and Midland offices of Sinclair Oil & Gas.

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Knock This One Down Now—But Fast

THE WASHINGTON REPORT that the Eisenhower Administration is contemplating another increase in the federal tax on gasoline should be regarded as a trial balloon; and it should be shot down with as much gusto and dispatch as it is possible to muster.

It's an old political trick to sound out sentiment, or to test the strength of the opposition, by precipitating reports and rumors. If the reaction is strong enough, then the project can be dumped hastily before it becomes a major liability.

Thus, the time is now, not a month or two months hence, for the oil and automotive industries, the various associations, the highway users, and others to let out with a series of howls that'll make the Washington planners and politicians feel sure that the opposition is formidable, vocal, and determined.

There's more to this than meets the eye at first glance.

If it's not a trial balloon, then it could be regarded as the beginnings of a diversionary tactic that might jeopardize the scheduled termination date in 1961 of the compromise 1¢ increase that went into effect only last September.

It could, for example, keep the opponents of any increase so busy fighting off the threat of another that they might wind up having to compromise their earlier compromise just to prevent the motorists from being saddled with additional taxes this year.

IT HAS ALL THE EARMARKS of a political double-cross, too. The compromise late last summer provided sufficient funds to keep the highway program going at high speed while the Commerce Dept. made a detailed study of road-building plans and taxes. That report isn't due until next year, and the inference was that there'd be no more tax increases until it was completed.

Of course, the Eisenhower Administration can take the position that it's only seeking its original objective of 1.5¢ a gal. But that's being somewhat two-faced about a tax problem that is getting completely out of hand.

GASOLINE TAXES ARE EXCESSIVE; in many states they represent more than 50% of the retail cost of the fuel itself. Of the score or so of state legislatures that will convene again this month, at least a half-dozen are thinking out loud about gasoline tax increases to meet their own revenue requirements.

Somewhere, sometime, this business of pyramiding the taxes on gasoline must be halted. There's no time like now. Right now.

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